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Volume 90 Number 4

STEEL

For forty-eight Years—IRON TRADE REVIEW

PRODUCTION ◆ PROCESSING ◆ DISTRIBUTION ◆ USE

The Week In Steel

THE inscrutable wooden barrier inclosing the site of a large building operation usually belies the activity behind it. Excavating is being completed, footings put in, much necessary preliminary work done which will not be apparent until steel for the second story shows. Business today is in the same deceptive position. While demand for commodities, including steel, is expanding moderately, it is easy to deduce from surface indications that business still is drifting. But the fact is, the fundamentals of a sound business situation are being laid in many directions, although it may be the second quarter, perhaps the second half, before this is realized and capitalized.

Industry Seeks Only Bedrock

Congress is doing a remarkably constructive job; the President is concentrating on domestic problems; the worst concerning the foreign situation is known; industry is getting down to essentials. What the country needs is not a corner to turn but a bottom on which to rebuild, and powerful forces are at work providing this bottom. . . . Congress has confounded its critics by passing (page 13) the Reconstruction Finance Corp. bill without vitiating amendments, and the President has followed up this advantage by the happy choice of Charles G. Dawes as president and Eugene Meyer Jr. as chairman.

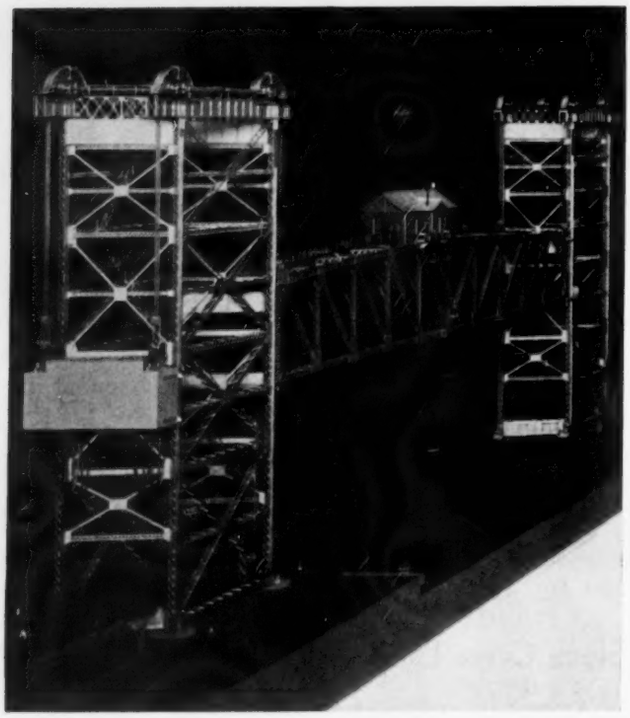
Buying Power Falls as Taxes Rise

Unfortunately the senate's committee on manufactures has smudged this good record a little by approving an appropriation of $375,000,000 to assist the states in relieving unemployment—an appropriation which the President opposes as unnecessary—but passage of it is not imminent. . . . Congress, with the states and municipalities, appears earnest in attempting to balance budgets; already the eastern structural steel markets (page 46) detect lessened demand for material for public works. . . . But there will be a corresponding gain in a diminished incidence of taxes, Bethlehem Steel's president being emphatic (page 13) for governmental economy, smaller levies.

Stock Gives Labor Understanding Heart

Although railroad labor has not acquiesced in a 10 per cent wage reduction as rapidly as expected, final consummation of this economy is not doubted (page 13), and labor as a whole continues co-operative. . . . Industry is making a friendly gesture by assisting employes whose stock purchases are proving burdensome (page 11), and instead of employe-participation creating unrest because of falling security values it appears to have stimulated sympathy

Speaking of steel houses—a perfect "skull" from the steelworks ladle makes a fine switchman's shanty at Republic Steel Corp's Upson Nut division, Cleveland. Such a skull is rare



Steel in miniature: This operating engineering model of a Chicago river railroad bridge, made by Paul F. Hermann Co., Pittsburgh, will be exhibited at the Chicago Museum of Science and Industry

with capital's difficulties. . . . New England employers, their faces set determinedly against compulsory employment insurance (page 13), have voted 8 to 1 against any restriction on the use of machinery.

New England Defends Mechanization

In fact, New England takes the position that the need of today is the installation of more modern machinery (page 58), there being more general well-being, less pauperism, more people per thousand gainfully employed, than since 1880. . . . A Milwaukee manufacturer of machinery reports (page 13) it easier now to interest manufacturers in new equipment than in late 1931. . . . Even a 10 per cent reduction in wages plus intensive mechanization leave hourly wage rates at blooming, plate, bar and rail mills (page 12) double the 1914 levels. . . . Westinghouse salaries have been made contingent upon earnings (page 12), reductions to be tempered as net income improves.

Chase Sales Instead of Nickels

Industry must sell, and cease seeking salvation by reducing expenses and personnel, steel founders were advised (page 11) at their Chicago convention. Income, not economy, was set up as their goal. . . . Producers of steel appear to be pursuing this policy as their sales (page 41) have registered another moderate gain. . . . To this showing the automotive industry is making a contribution (page 16), though less than expected, but new models will induce obsolescence rapidly. . . . Rail mills will face a really competitive situation if the interstate commerce commission (page 11) orders track material bought on a bidding basis, as recommended.

A Cycle in Unemployment

Why unemployed men with ingenious minds should utilize their free time in inventing is understandable (page 12), but the anomoly of it is that their inventions can be successful only as they displace more labor. . . . It is also understandable (page 12) why in Colorado as in other western states lead, copper and other ores are being passed over in a search for gold. . . . Low consumption, abetted by the slack 1931 shipping season, has reduced lower lake stocks of iron ore (page 53) to 38,000,000 tons, or 938,000 tons short of a year ago—a showing which would be more auspicious if so many blast furnaces were not on a diet. However, shipments of pig iron in the lower lake district (page 51) are heavier.

Steel Builds Houses, Makes Them Livable

With the development of several new residence designs, steel assumes a more important role in house construction (page 26), Cleveland is being used as a proving ground. Just completed is a house featuring a welded steel frame; announced for erection shortly is a residence with exterior and interior of porcelain enameled steel; projected is a frameless house of sheet steel. Also stimulating the use of steel is another design in which metal reinforced slabs of insulating material would be shop-made and assembled on the job. . . . Steel, however, will not stop with the mere framework of a house. Air-conditioning equipment will make it more livable, an installation for a large house (page 30) requiring 3000 pounds of steel.

Safe Lighting of Furnace Now a Rite

Proper observance of safety for furnace operators requires more than the mere touching of a match for the "lighting off" of gas or oil-fired furnaces. The operator must stand at one side of the furnace (page 23), wear gloves and goggles, use a long torch. . . . Purified city gas is used in a Massachusetts mill (page 32) for bright annealing high carbon coiled strip steel.

Income, Not Economy, Should Now Be Goal of Industry

CHICAGO—Not much more is to be gained by reducing personnel, salaries and wages. The job of chasing nickels in unnecessary expense has been completed. Management now must concern itself with income, according to Walter Buchen, the Buchen Co., Chicago, addressing the annual meeting of the Steel Founders Society of America, Jan. 21.

The period of saving ourselves out of the depression has passed and unless industry can sell itself out, it must get out. Reviewing the seven stages of steel casting selling, Mr. Buchen enumerated metal quality, foundry inspection, foundry practice improvement, metallurgical advance, free engineering service in casting design, special heat treatment and capitalizing knowledge of machine shop practice and customer needs.

"Let the Seller Beware"

The age old injunction, "Let the buyer beware," has been turned about and now it is, "Let the seller beware." The speaker recommended selling mergers, on the basis that specialization on a single line is possible only in a large volume era. Today, he believes, steel castings could be sold in joint selling arrangement by men competent to handle many other products have a similar customer outlet.

President W. H. Worrilow, Lebanon Steel Foundry, Lebanon, Pa., outlined the points upon which trade association co-operation is vitally needed and urged increased support of the society's objective, in calling the meeting to order.

Firm Bidding Recommended

Arthur Simonson, Falk Corp., Milwaukee, reviewed the subject of firm bidding, first presented to the membership in a paper at the meeting Sept. 17, 1931. This principle, which is the submission of a price, accurately determined with reference to cost, to remain unchanged unless a change in buyers' specifications warrants a different quotation, has been widely discussed.

Definite action in approving the principle was deferred to the meeting of the society in Philadelphia, simultaneously with the American Foundrymen's association meeting, during the first week of May, 1932.

Clarence Tolan Jr., Dodge Steel Co., Philadelphia, commenting on Mr. Simonson's address, and on various practices extant, referred to the destructive deflation. He recommended that members discourage their own purchasing departments from tactics which meet every price quotation with a demand for a lower figure.

Trade reports by members present indicated an extremely low rate of operation governing the entire industry. Many expressed perplexity at the spasmodic character of inquiries, a few noted an increase in inquiries, several recounted instances of definitely deferred buying, mainly in railway lines and an attendant backed-up demand.

In presenting his annual report, Granville P. Rogers, managing director of the society, outlined economies that have been established. He deprecated the destructive and unethical competition which has attended the depression period, and stated that a wide review of suggested plans for reconstruction all tend toward trade association co-operative action. An address by Clark McKercher, counsel for the society, closed the morning session.

Elect 1932 Officers

J. G. Ritter, Westinghouse Electric & Mfg. Co., Pittsburgh, defined the determining factor in the comparative cost of welded and formed or castings for similar work, to be the number of pieces involved. In other words, the pattern cost is the important item in work of the character manufactured by the speaker's company.

Mr. Ritter discounted the inference that his firm was interested in promoting welding in preference to castings, due to the fact that the company manufactures welding equipment, and stated that the savings in cost in each individual item was paramount in cases of competition.

The following officers were elected for the ensuing year: President, Arthur Simonson, Falk Corp., Milwaukee; vice president, eastern division, G. R. Casey, Treadwell Engineering Co., Easton, Pa.; vice president, Central Atlantic division, John E. Galvin, Lima Locomotive Works Inc., Lima, O.; vice president, midwest southern division, F. A. Lorenz Jr., American Steel Foundries, Chicago; and vice president, midcontinent division, H. G. Muchnic, Locomotive Finished Material Co., Atchison, Kans.

The following new directors were elected: W. H. Worrilow, Lebanon Steel Foundry, Lebanon, Pa.; W. W. Powell, Mesta Machine Co., Pittsburgh; J. T. Osler, Continental Roll & Steel Foundry Co., East Chicago, Ind.; R. F. Nash, Pettibone-Mulliken Co., Chicago; and C. A. Binder, St. Louis Steel Casting Co., St. Louis.

Industries Aid Employes Solve Stock Problems

Industrial companies are following a liberal policy in meeting the situation resulting from the reduction in values of stocks sold to employes during more prosperous years, the National Industrial Conference board, New York, reports. Employes have not been held to strict compliance with purchase agreements, and some companies are said to have lost substantial sums by releasing purchasers from contracts.

A survey by the board reveals employes who have completed stock purchases have accepted price declines philosophically, realizing managements were not at fault. Far from creating animosity, the plans seem to have added to a mutual understanding of each other's problems. In many instances stock values, after sharp declines, still are higher than the prices paid by employes.

Competitive Bids For Rails Urged

WASHINGTON — The railroads should purchase their supplies, including rails and other track material, on the basis of competitive bidding, is the recommendation of William P. Bartel, service director, and John L. Rogers, examiner, for the interstate commerce commission.

The practice of routing material over the lines of buyers also was condemned in the Bartel-Rogers report, made in connection with the investigation into reciprocal purchasing and routing. It proposed that the commission recommend to congress that the interstate commerce act be amended in these two respects.

The Bartel-Rogers report states, in part:

Expenditures for steel rails, frogs, switches, crossings and track fastenings in 1929 amounted to $165,166,000 or 12.42 per cent of all railroad expenditures for materials and supplies.

The carriers in purchasing steel rails and parts apparently have little or nothing to say about the price they pay. The manufacture of rails and parts is confined to relatively few concerns and prices are practically uniform. Purchases from different mills are to a large extent pro-rated

according to commercial traffic of the various mills which is routed with the purchasing carrier.

At present the department of justice, at the instigation of Senator Couzens, of Michigan, is investigating the price of standard steel rails, which has been pegged at $43 since 1921.

The railroads contend the price should be adjusted in accordance with the decline in other steel products. The mills have maintained that rails did not go up when other products did, hence there is no occasion to lower them.

At least one carrier, in considering its 1932 rails, endeavored indirectly to shade the $43 price.

Inspect Steel Melting Furnace at Canton

Canton, O.—Some 60 interested steel men visited the plant of the Bosshardt Steel Corp. here Jan. 20-22 during the three-day demonstration arranged by the company to show possibilities of its 3-ton melting furnace.

The furnace is of special construction in that the gas producers are built integrally on either side. From now on it will be in daily operation for inspection.

L. J. Harley Jr. is president of the Bosshardt Steel Corp.

Pennsylvania Slows Program

Philadelphia — Pennsylvania railroad has postponed a start on its proposed tunnel in Baltimore and slowed its schedule on the Thirtieth street station, Philadelphia, in line with a temporary retarding of its New York-Washington electrification program pending a more favorable financing condition. Production schedules of 150 electric locomotives placed sometime ago may be affected. Grade elimination work in Baltimore is being continued.

Rod Standard Is Revised

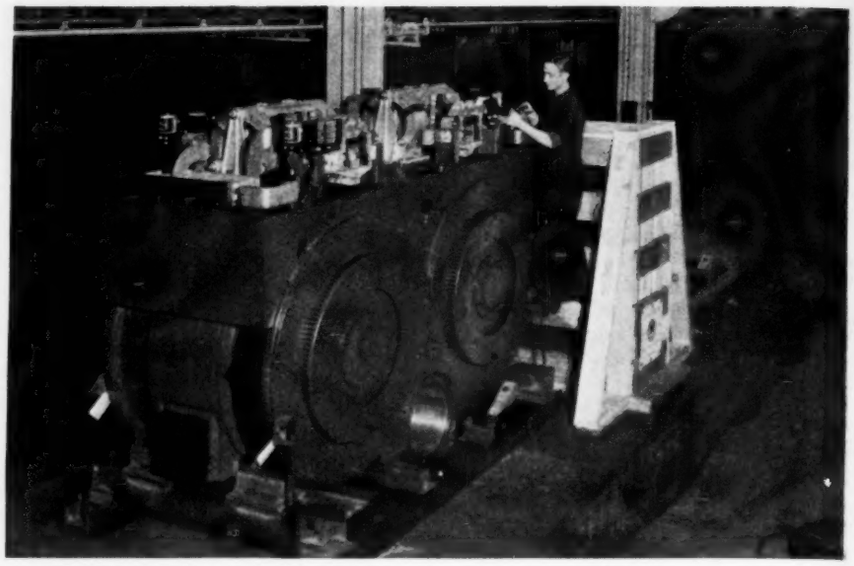
Washington—Bureau of standards, department of commerce, is distributing a revised simplification standard of steel spiral rods for concrete reinforcement.

Forgings to Bethlehem

New York—Bethlehem Steel Co. has been awarded 2000 shell forgings for the chemical warfare service arsenal at Edgewood, Md., on a bid of $1.63.

Hoist Makers Meet Jan. 28

New York—The next meeting of the Electric Hoist Manufacturers' association will be held Jan. 28 at the Hotel McAlpin, New York.



STARTING $9,000,000 WORTH OF ELECTRICAL SHIPMENTS: For the Pennsylvania railroad's electrification between New York and Washington, Westinghouse Electric & Mfg. Co. recently forwarded nine specially developed motors and controls to the Baldwin Locomotive Works. Instead of the usual boxing, the motors were protected in transit with large metal covers. Covers and flat cars will shuttle between East Pittsburgh, Pa. and the delivery point until the equipment is completed

What's Happening In Business World

UNEMPLOYED men, with much time on their hands, are turning to invention and seeking patents on devices which in turn would supplant more labor. The number of inventions patented or awaiting patent papers in the past 6 months is greater than in any similar period, according to Herman Larson, managing director of the third international patent exposition, at Philadelphia, Feb. 1-10.

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At general mining properties in Colorado ore containing lead, copper and other metals is being placed in dumps, with indications of gold followed closely. Value of Colorado's mine output in 1931 is estimated at $26,433,080.

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In a recent case in the Manchester, Eng., police court the testimony was recorded electromagnetically on a narrow steel tape, irrelevant testimony later deleted, and by means of a reproducer only the relevant testimony presented by means of headphones to the jury.

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American Farm Bureau Federation, Washington, the country's largest farm organization, is threatening to sell farm implements direct to the farmer unless manufacturers reduce prices.

Sears, Roebuck & Co., Chicago, will sell a general purpose tractor from 25 outlets in the Middle West, offering low prices and standard credit terms.

Salaries Hinge on Profits

Pittsburgh—Westinghouse Electric & Mfg. Co. is adjusting its salaries to net income. The reduction of 25 per cent in salaries last summer is being increased to 30 per cent, but for every $40,000 of net income maintained over a 3-month period the reduction in salaries will be tempered one point. Thus, if the net income of the company averages $80,000 for three months salary reduction will be adjusted to 28 per cent beginning the fourth month.

Hourly Steel Wages Still Double 1914 Averages

Hourly wages in blooming, plate, bar and rail mills have not returned to prewar levels since they were reduced approximately 10 per cent in October, 1931. The averages as determined by the bureau of labor statistics, as of March last year, for these four departments were as follows: 66.4 cents; 62.7 cents; 58.8 cents, and 61.3 cents, respectively. Assuming these averages were reduced 10 per cent in October, that for blooming mills now would be 59.7 cents; for plate mills, 56.4 cents; for bar mills, 52.9 cents; and for standard rail mills, 55.1 cents.

These indicated present-day hourly averages are the lowest since 1922, when for blooming mills the average was 47.2; for plate mills, 47.6; for bar mills, 48.6; and for rail mills, 47.

Even with a 10 per cent cut in the averages as of March, 1931, the hourly wages in all cut bar mills are more than double those of 1914. In that year they were: Blooming mills, 26.9 cents; plate mills, 25.8 cents; bar mills, 27.8 cents; and rail mills, 25.2 cents.

The bureau's report of its March, 1931, tabulations, just completed, shows that compared with 1929 the blooming mill average was down less than 1 per cent; plate mills, down 1.9 per cent; bar mills, reduced 5.9 per cent; and rail mills, off 2.4 per cent.

May Revise Scrap Grades

Institute of Scrap Iron and Steel Inc., New York, will meet with the National Association of Purchasing Agents and the American Railway association, upon invitation of the department of commerce, Washington, to consider revision of scrap iron classifications.

The institute will holds its next annual meeting at Washington, March 8-10.

Grace Decries Tax Burden

Addressing the annual sales meeting of the Bethlehem Steel Corp. at Bethlehem, Pa., Jan. 18, Eugene G. Grace, president, declared that the cost of government must be lessened, budgets must be balanced, taxes must be lowered. Prosperity in steel, as in all industry, hinges upon purchasing power, which is diminished as taxation increases, he warned.

The Business Week In Washington

AN APPROPRIATION of $500,000,000 to make the Reconstruction Finance Corp. effective is expected to be passed by congress in even less time than was required for the corporation, chief of President Hoover's business relief remedies. An additional $1,500,000,000 can be administered by Charles G. Dawes, president of the corporation, and Eugene G. Meyer Jr., chairman, for alleviating the credit situation by the sale of debentures.

Congress also has passed a bill providing $125,000,000 additional capital for federal land banks, of which $25,000,000 is earmarked for farmer mortgage payments.

The senate committee on manufactures has reported favorably a bill appropriating $375,000,000 for distribution among the states, 40 per cent on the basis of population and 60 on the basis of actual need. Administration leaders and the President are opposed.

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The tariff commission has ordered an investigation of the duty on fluorspar.

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House ways and means committee is ending hearings on tax proposals and is starting to draft a nonpartisan measure for introduction in the house soon after Feb. 1.

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A house bill would cut all federal salaries of $2000 to $5000 5 per cent; salaries over $5000 10 per cent. A bill in the senate would cut salaries from $5000 to $7000 6 per cent; from $7000 to $10,000 10 per cent; over $20,000 20 per cent. President Hoover is not opposed to a reduction.

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Whatever efforts are made by the railroads to provide additional employment as a result of railroad labor accepting a 10 per cent wage reduction will be centered on railroads' own repair and maintenance work and probably will benefit carbuilders little. Still meeting at Chicago, labor leaders and railroad presidents have been discussing the financial condition of the carriers.

Interest in Machine Tools Is Expanding

Decided improvement in orders and betterment in sentiment in the machine tool trade has developed in recent weeks, in the opinion of E. J. Kearney, secretary and treasurer of the Kearney & Trecker Corp., Milwaukee. From July to September, he says, it was difficult to interest manufacturers in new equipment, but in the last six to eight weeks firms that previously had shown no interest are now in the market. "They at least talk about new equipment," Mr. Kearney added.

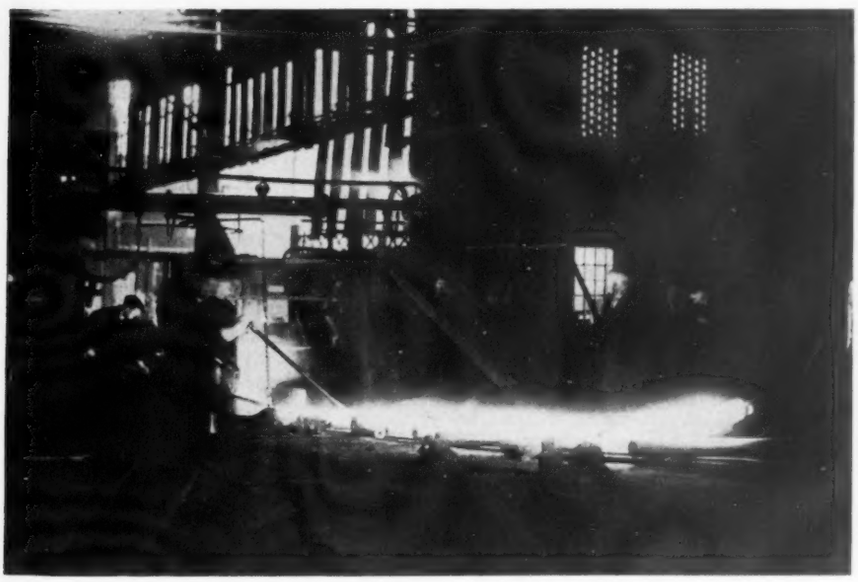
Against Shackling Machines

New England executives, canvassed by the New England council on the matter of increasing employment by restricting the use of machinery, voted 545 to 71 against such a plan. Strong opposition to compulsory employment insurance was expressed. Reserves to help maintain the income of stable industrial forces during slack times were favored by 323 New England executives and opposed by 207.

Increased research for new products and improvement, new machinery of higher capacity, new manufacturing processes and revision of manufacturing layout are policies which members of the New England council plan to further this year.

Exports Off 2293 Tons

Washington—Iron and steel exports in December totaled 57,263 gross tons, a decline of 2293 tons from November and making 1931 exports 965,268 tons, against 1,981,985 tons in 1930, preliminary figures of the department of commerce show. In December, 1930, exports totaled 101,992 tons.



Acme Photo

IN THE HEART OF THE BRITISH TIN PLATE INDUSTRY: Rolling blooms to sheet bars, preparatory to converting them to sheets for tinning, in South Wales. Great Britain's exports of tin, terne and coppered plates in the first nine months of 1931—283,647 *gross tons—was* 66 *per cent of the total in the comparable period of* 1930. *Belgian sheet bars have been used in British tin plate mills*

Industrial Men in the Day's News

James C. Foster, Manager of Wire Sales, Jones & Laughlin Steel Corp., Pittsburgh

THROUGH his entire industrial career he has been affiliated with Jones & Laughlin Steel Corp.

DURING the World War he served with the Marine Corps in Haiti and Santo Domingo.

SINCE the close of the War, until his recent appointment as wire sales manager, he had been assistant manager of that department.

JAMES CAVEN FOSTER, recently appointed in charge of sales of wire products for the Jones & Laughlin Steel Corp., Pittsburgh, as noted in STEEL, Jan. 11, has been identified with that company throughout his industrial career practically all of which has been spent in sales work.

He was born in Pittsburgh in 1894 and received his public and high school education there. After his graduation from high school he entered the employ of the Jones & Laughlin Steel Corp. in the order department in January, 1913. Two years later he was transferred to the sales department at Pittsburgh, where he remained for the next two years.

Mr. Foster enlisted in the United States marine corps shortly after this country entered the World war and served about two years in Haiti and Santo Domingo.

Upon his discharge he returned to Jones & Laughlin as assistant to the manager of sales of wire products, continuing in this capacity until his recent appointment.

In his new office Mr. Foster succeeds E. D. Batchelor, who has been placed in charge of a special department of general sales for the company.

A. B. BETZ, formerly a partner in Betz-Pierce Co., Cleveland, iron and steel jobbers, and later affiliated with Super-Steels Inc., Cleveland, has become associated with National Drawn Steel Co., East Liverpool, O., in a sales capacity.

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Howard F. Kulas, vice president, Midland Steel Products Co., Cleveland, has been appointed to head the experimental and research division of the company.

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Charles McDonough has been appointed publicity manager of Combustion Engineering Corp., New York, succeeding Carl Stripe, resigned.

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Franklin H. Fowler has been elected president of Foote Bros. Gear & Machine Co., Chicago, to succeed James F. Griswold, resigned due to other business interests.

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Lewis S. Reed, Frank J. Damon, W. R. Reid and Frank M. Travis, all were recently elected new directors of Hendey Machine Co., Torrington, Conn.

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W. T. Donkin, formerly chief engineer of the Cleveland Wire Spring Co., Cleveland, has become assistant general manager of the coil-spring division of the Eaton Spring Co., Detroit.

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Robert P. Lay, formerly assistant chief engineer with the H. H. Franklin Mfg. Co., Syracuse, N. Y., has become associated with the National Transit Pump & Machine Co., Oil City, Pa.

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W. R. Culbertson, formerly associated with the Chapman Engineering Co. and the Chapman-Stein Co., Mt. Vernon, O., in the producer division and later with the Surface Combustion Corp., Toledo, O., has been placed in charge of the furnace division of the Rust Engineering Co., Pittsburgh, effective as of Jan. 15. He has had 14 years' experience in engineering work. In his new position Mr. Culbertson succeeds his brother, the late A. L. Culbertson.

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H. A. Henley, with OK Machine Works, Tulsa, Okla., for several years, has become associated with the newly organized Tulsa Gas Engine & Machine Co., Tulsa, as general manager. J. B. Henley is connected with the new company as plant superintendent.

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W. W. Eaton, sales manager of the Babcock & Wilcox Tube Co., Beaver Falls, Pa., has been given a six months leave of absence. W. Woodward Williams, who has been closely associated with the company for the past several years as sales counselor, has taken Mr. Eaton's position as acting general sales manager during this period. Mr. Williams until three years ago was vice president in charge of sales of the Pittsburgh Crucible Steel Co., Pittsburgh, previously having been identified with

the Reading Iron Co., Reading Pa., as vice president in charge of sales and operations, and prior to that time as general sales manager of the A. M. Byers Co., Pittsburgh.

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W. Clark Dean, for several years vice president and assistant general manager, Union Steel Products Co., Albion, Mich., has been named general manager of the company.

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John F. Galvin, president of the Metal Stamping Co., Long Island City, N. Y., has been re-elected chairman for a fifth term of the New York Port Authority.

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Fred S. Fogg, Tacoma, Wash., has been elected to fill the unexpired term of the late Judge Stephen J. Chadwick, Seattle, as chairman of the board of directors of the Pacific Iron & Steel Works, Tacoma.

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Ross H. McMaster, president of the Steel Co. of Canada Ltd., Hamilton, Ont., and a director of several other industrial corporations, has been elected a director of the Dominion Bridge Co. Ltd., Montreal, Que.

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R. M. Bickley has been appointed chief engineer of Heyl & Patterson Inc., Pittsburgh, builder of material handling machinery, succeeding L. J. Robb. Mr. Bickley recently was assistant chief engineer.

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Edward Lee Ives, vice president of H. A. Brassert & Co., A. M. Byers Co., Pittsburgh, and president of the Open Hearth Combustion Co., Chicago, has been elected a director of Chicago Gulf Corp., Chicago, a natural gas company.

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Edwin Hodge Jr. has been elected chairman of the board of the Pittsburgh Forgings Co., Pittsburgh. F. D. Foote, vice president, has been elected to succeed Mr. Hodge as president. R. A. Mitchell, recently in charge of operations, has been elected vice president.

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H. P. Kirchner was recently elected president of the Hutto Engineering Co. Inc., Detroit, at the company's annual meeting. R. A. Jacobs was named vice president; J. A. Carlin, vice president and general manager; R. H. Lansburgh, secretary and treasurer; V. M. Laine, assistant secretary and treasurer.

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R. H. Maddocks, sales agent in New York for Central Iron & Steel Co., Harrisburg, Pa., celebrated his fiftieth anniversary, Jan. 18, in selling steel plates for that company. Mr. Maddocks received many messages of congratulations from his business associates, including officials of his company and steel buyers in the New York district.

Obituaries

WARREN A. WILBUR, 72, prominent industrialist of Bethlehem, Pa., died at his home in that city Jan. 15. Following graduation from Swarthmore college, Mr. Wilbur entered the employ of the Bethlehem Iron Co., Bethlehem, in 1877, subsequently operating a blast furance and engaging in coal mining operations. He was the founder of the Bethlehem Foundry & Machine Co., Bethlehem, of which he was chairman of the board at the time of his death. Among his other affiliations were: Director and member of the executive committee of the Western Maryland raliroad, Bethlehem Fabricators Inc., Lehigh Valley National Bank and Lehigh Valley Transit Co. He also was chairman of the E. P. Wilbur Trust Co.

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T. Walter Martin, Brooklyn, N. Y., manufacturer of steel forgings, died Jan. 19 in Brooklyn.

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Andrew J. Stacey, 73, vice president of Stacey Mfg. Co. and Stacey Bros. Gas Construction Co., Cincinnati, died Jan. 19 in Cincinnati. He was the son of George Stacey, founder of Stacey Mfg. Co.

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Edward G. Cowdery, 75, an authority on gas engineering, died in Chicago recently. In 1907 he became vice president of Peoples Gas Light & Coke Co., Chicago, and served as president of that company from 1915 to 1919.

□ □ □

Robert L. Owens, 66, former general manager and secretary-treasurer, Champion Bridge Co., Wilmington, O., died at Ironton, O., Jan. 15. He entered the employ of the Champion Bridge Co. in 1886, following which he was affiliated with Brackett Bridge Co., Cincinnati. He returned to the Champion company in 1898 and had been connected with the latter continuously until his retirement in April, 1931.

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William M. Crane, 79, manufacturer of gas equipment, died at Mamaroneck, N. Y., Jan. 11. For many years he served as president of W. M. Crane & Co., New York, and was chairman of the Standard Gas Equipment Co., both of which firms were engaged in the manufacture of gas equipment and appliances. About seven years ago the two firms were merged into the Standard Gas Equipment Co.

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Richard Stresau, 51, engineer with the A. O. Smith Corp., Milwaukee, died at Milwaukee, Jan. 13. He was noted for his engineering contributions in the electric welding field on couplings, pressure vessels and pipe. Born in Galveston, Tex., he graduated from Massachusetts Institute of Technology, Boston, in 1904 and first went to work for an uncle engaged in the electrical business in Europe. Later he returned to this country and did some important engineering work for the government during the war. In 1919 he joined the A. O. Smith Corp.

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William V. Kelley, chairman of the board of the Miehle Printing Press & Mfg. Co., Chicago, died at Chicago, Jan. 20. He was organizer of the Simplex Railway Appliance Co., Chicago, and at one time was president of the American Steel Foundries, Chicago, which had absorbed the Simplex company. A prominent civic leader, he was a director of the Continental Illinois Trust & Savings bank and Armour & Co., both of Chicago.

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Frederick D. MacKay, 60, vice president of E. W. Bliss Co., Brooklyn, N. Y., manufacturer of machinery and other equipment, died at his home in that city Jan. 14. He was educated at Brooklyn Polytechnic institute, Brooklyn, and had been affiliated with the Bliss company for more than 40 years. Besides being connected with several other companies, he was a director of the Manhattan Bridge Three-Cent Line, Bank of Huntington Trust Co., Bank of Manhattan Trust Co., and a trustee of the Williamsburg Savings Bank. He was a sportsman of note, being an official of various riding clubs.

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Walter S. Comly, 69, general sales manager and assistant treasurer of the Russell, Burdsall & Ward Bolt & Nut Co., Port Chester, N. Y., died at his home in that city, Jan. 18. Mr. Comly had been associated with the company and its predecessors for almost 54 years, having begun as a toolmaker in 1878. His father, Samuel Comly, was then general sales manager of the company. In 1882, when William L. Ward left the company, then the Russell, Burdsall & Ward Co., of which his father was a founder in the early '40's, to form his own company, the Port Chester Bolt & Nut Co., Mr. Comly became a toolmaker with the latter and later, a salesman. In 1901 the two organizations were consolidated and Mr. Comly becames sales manager of the combination.

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Eugene W. Smith, 73, veteran Chicago foundryman and general superintendent of the iron and steel foundries of Crane Co., Chicago, died at Oak Park, Ill., Jan. 19. He was the second oldest employe of the company, having entered its employ at 14 as an apprentice, and thus being identified with Crane Co. foundries for nearly 60 years. For many years he was fore-

(Concluded on Page 55)

MIRRORS of MOTORDOM

DETROIT

AFTER an inspection of the new models at any of the larger automobile shows it is easy to conclude that automotive engineers have just about exhausted their ingenuity.

Insert a key in the starter switch and the engine is cranked, and kept cranked. No need, any more, of depressing the clutch pedal or even a button on the floor, as gears may be shifted—or selected—without clutching. Of free wheeling and silent seconds there is no end.

Carburetors are automatically choked, and may be forced with superchargers. Decarbonizers automatically keep cylinder heads and pistons clean. Crankcase oil is cooled as well as filtered. Springs come lubricated for the life of the car. Engine vibration is quelled by rubber or spring suspensions. The rear axle gear ratio may be adjusted from the driver's seat.

All-steel welded bodies, insulated against heat and cold, are integral with the chassis. Lower, wider frames are split over the rear axle for a lower center of gravity. Shock absorbers can be adjusted any time to any road. Small doors are smarter and more efficient than louvers in the sides of hoods. Shatter-proof glass in all windows minimizes the hazard of accidents.

Power Steering Is Near

Practically the only manual operations left are steering, gear shifting, braking—and writing the checks to meet the installments. Obviously, the automobile industry is offering more "new stuff," as it terms it, than in any previous year. Yet perfection is far from attained, as various automotive engineers and writers point out.

Power steering is coming. Experiments are now under way, with buses and trucks first to be equipped. On a straightaway there will be no necessity to put the hand to the wheel; for turning, the slightest touch will suffice. The steering wheel of the future will be to the front wheels what the helm of a ship is to its rudder. It may be that power steering will be a concomitant of extremely low pressure balloon tires.

Engine To Go To Rear?

Europe has been rather cold to free wheeling and front wheel drive, but is increasingly partial to independent suspension of wheels, the frame being virtually eliminated. A quality of riding not achieved in the most luxurious American cars is claimed.

Improved ventilation of bodies undoubtedly will be accomplished by air-conditioning. What manufacturer will first market a nonglare headlight, which will adequately light the highway without blinding oncoming drivers? Able minds likewise are at work on the problem of rendering exhaust gas nonpoisonous.

Because the horse had to be hitched to the front of the buggy must the automobile engine also be in front? Stream line bodies, toward which some progress has been made with slanting or curved radiators, slanting windshields and curved rear ends, may make rear mounting more practical.

Four speed drives with silent thirds are being offered in Europe. Synthetic resins for body finishes are said to shorten finishing time and provide greater protection. Many uses for synthetic rubber are visualized, one being an inner tube virtually immune to deterioration from heat.

What a thrill the average automobile owner derives from inspecting the new models, but what a shock is ahead when he tries to trade in his old car. It will not be many months before sophisticated shoppers for used cars demand free wheeling, automatic engine cranking and the various gadgets by which the automotive industry is "breaking with the past."

Then, used cars of the pre-1932 period will be selling at a heavy discount. Balloon tires and four-wheel brakes will appear mild, as a means of inducing premature obsolescence, compared with the mechanical advances of the 1932 lines.

Considering business conditions, the new models stand for the great courage of the automobile industry, which, as a General Motors executive said recently, believes it has a first lien on the consumer's dollar. At the moment the new models will stimulate some buying, the New York show reporting greater attendance and sales than a year ago.

But the industry is looking farther ahead than the shows. It is convinced that when a man again has a job and moderate assurance it will be steady, one of his first acts will be to make a down payment on a new car. Not cash but assurance of work is what the automobile industry is counting upon.

Chevrolet Still Leads

Assembly of 32,000 units by the industry last week makes it fairly certain that January production will exceed 130,000 units. Chevrolet, still the leader, last week accounted for one third of the industry's activity.

Ford continues to lag behind expectations. There are plenty of signs of increased activity in this district; four open-hearth steel furnaces are producing and several are slated for

early resumption, which would indicate that heavier production has been scheduled by Ford.

February output of Ford may approximate 25,000 units, it is said, chiefly the revised 4-cylinder model, and by the end of February a daily rate of 2000 units is contemplated. Quantity production of the proposed 8-cylinder Ford is said to be deferred until late in the first quarter at the earliest.

Ford is coming to be regarded as a bellwether on retail demand. His lack of speed in swinging to the new jobs indicates his belief a slow retail market is in prospect for this quarter at least. Nevertheless, the fact is that automobile production is ahead of December, and unemployment has decreased, if demands upon relief organizations are a criterion.

Buick has caught up with its backlog and produced 2175 cars last week, a decline of about 100 units daily. Buick having introduced its 1932 line early, it lacks the dealer buying which is maintaining Dodge, DeSoto, Pontiac, Olds, Hudson, Studebaker and Willys-Overland schedules at a faster pace. These seven assembled 11,000 cars last week.

Here and There in Industry

OGLEBAY, Norton & Co., Cleveland, have been appointed exclusive agents for the sale of Wrigley semicold blast charcoal pig iron and Rockdale ferrophosphorus produced by the Tennessee Products Corp., Nashville, Tenn. The charcoal iron is produced at Lyles, Tenn., and the ferrophosphorus at Rockdale, Tenn. The company produces practically all its raw materials from its mines near the blast furnaces. Oglebay, Norton & Co. mine and ship iron ore, handle sales of several fluorspar mines in Illinois and Kentucky, sell lake, steam and domestic grades of coal, and represent ferromanganese producers.

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Roller Bearing Co. of America, Trenton, N. J., has appointed Edward C. Gainsborg sales manager, C. S. Riple sales representative at Cleveland, and R. H. Nesmith at Detroit.

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Fort Pitt Bridge Works Co., Pittsburgh, will move its Cleveland district office Feb. 1 from the third floor to the eighth floor, Bulkley building, Cleveland.

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Canton Tin Plate Corp., Canton, O., is moving its Detroit district office, Harold Davey district sales manager, from the third to the fourth floor, General Motors building.

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West Point Iron Works, West Point, Ga., has changed its name to West Point Foundry & Machine Co. with no change in management. The plant has been reopened after several months idleness.

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Precision Castings Co., Syracuse, N. Y., has purchased the Franklin Die Casting Corp. of the same city. It will dismantle the plant and use the equipment in its plants at Syracuse and Cleveland.

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New York Insulated Wire Co., Wallingford, Conn., has become a unit of the Essex Wire Corp., Detroit, retaining its name and continuing operation as a subsidiary.

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Pratt & Letchworth Co., Buffalo, for many years producer of castings, has been incorporated under the name of Pratt & Letchworth Co. Inc. No change will be made in personnel or policy.

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Babcock & Wilcox Co., 85 Liberty street, New York, has assumed closer relations with the Fuller Lehigh organizations, sales offices of the two organizations being combined and operated under the name of the former.

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Stanley Tools, New Britain, Conn., has bought the rule business of Hiram A. Farrand Inc., Berlin, N. H., manufacturer of the Farrand rapid rule. Machinery and equipment has been transferred to the plant at New Britain.

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Harry W. Dietert Co., 676 West Grand boulevard, Detroit, has obtained rights from the United States Radiator Corp. for the manufacture and sale of its cupola iron temperature recorder. This device indicates deviations from normal cupola operation.

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Multi-Products Inc., 193 South street, Fitchburg, Mass., has started production of several machines adapted for cutting intricate designs in sheet metal, sheet fiber and other materials and shipments to several users are to be made at once. Frank W. Willis is president, Albert V. Pickering treasurer, and Roger P. Bigelow secretary.

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Iron Fireman Mfg. Co., 3170 West 106th street, Cleveland, has completed concentration of its sales, service and purchasing departments at Cleveland, leaving at Portland, Oreg., its former headquarters, only the manufacture of special parts and production for the west coast and the Orient. The company manufactures a stoker mechanism.

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Foote Bros. Gear Mfg. Co., 215 North Curtis street Chicago, has enlarged the territory of its New York office, in charge of E. A. Phillips, to include supervision of its Buffalo and Philadelphia offices, which will offer estimating and engineering service. M. L. Rowe has been placed in charge of the company's Cleveland office at 1940 East Sixth street.

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Continental Construction Corp., Chicago, organized originally by Cities Service Co., New York, the Insull interests in Chicago, and other groups, which built the record length natural gas line from Texas to Chicago, has changed its name to the Natural Gas Pipe Line Co. of America. Its capitalization has been increased from $500,000 to $1,500,000.

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Arthur G. McKee & Co., Cleveland, through Schneider et Cie, Paris, its associate company, has been awarded initial contracts in connection with an oil refinery project in France, to cost $15,000,000. It will refine the French share of oil from Iraq. The contracts call for design and construction of primary crude oil distillation equipment, to cost about $1,000,000.

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Allis--Chalmers Mfg. Co., Milwaukee, has purchased the Ryan Mfg. Corp., Chicago, road grading machinery and excavating equipment, whose product will be added to the lines being concentrated at the Advance-Rumely division of Allis-Chalmers at LaPorte, Ind. This completes a line of road machinery for Allis-Chalmers to fit in with its industrial tractor production.

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Detroit Steel Casting Co., Detroit, a Michigan corporation for 30 years, has renewed its charter for a second period and co-incident with this renewal has made several changes in officers. The new lineup includes: John S. Newberry chairman of the board, S. W. Utley president and general manager, J. M. Duncan vice president in charge of sales, F. A. Melmoth vice president in charge of operations, W. S. Allen secretary, J. P. Warren treasurer, J. R. Burgess assistant treasurer.

EDITORIAL

Steel Is Gaining Ground In Building Industry

STATISTICS on the distribution of finished rolled steel show that the railroad, building and automotive industries are the leading consumers. During the 10-year period covered by figures inaugurated and compiled by STEEL, the railroads have held first place seven times, the building industry has led the field twice and the automotive group has one first to its credit. The 10-year averages for the three principal consumers are: Railroads, 21.60 per cent of the total tonnage; buildings, 14.76 per cent; and automotive, 13.81 per cent.

But these comparisons fall short of revealing certain significant factors in the trend of steel consumption. The percentage of total output taken annually by the railroads has been falling steadily. Meanwhile the proportion taken by the building and automotive groups has been gaining. The increase of consumption by the motor car industry appears to be slightly in excess of the gain made by the building industry. However, if one takes into account the volume of production in both industries, the steady increase in steel consumption in the building construction field is more significant than that in the automobile industry.

Percentage of Steel Consumed Gains Despite Drop in Building Volume

For instance, the output of automobiles in the United States in 1930 was 90 and in 1931 about 64 per cent of the 10-year average annual production. Building construction, measured in terms of area, in 1930 was 65 and in 1931 only 50 per cent of the average for 10 years. In spite of the fact building construction suffered more severely in these two depression years than the automotive industry, its consumption of steel was proportionately greater than in the best years of building activity. In other words, the building industry leaped ahead of the automobile industry in a period when building volume was more sharply depressed than was the volume of motor car output.

The obvious conclusion to be derived from this record is that more steel per unit of building construction was used annually in 1930 and 1931 than in any of the years from 1922 to 1929, inclusive. Thus we have statistical confirmation of the judgment of a few pioneers in the steel industry, who, during the past decade, directed their efforts toward broadening the market for steel in buildings.

Now that progress in the more general utilization of steel in this field is apparent, the activities of steelmakers, mills, fabricators, and architects probably will be intensified. Already there is abundant evidence that renewed interest in houses of steel construction is developing in many parts of the country. New projects involving the use of steel for frames, floors, walls or roofs of residences have been reported in STEEL on numerous occasions during the past few years. On page 26 of this issue, attention is called to several current developments, each conceived and promoted independently, but all having the common purpose of increasing the use of steel.

Development of New Market for Sheets May Be Hastened

Up to the present time the pioneering in "steel" houses has been largely in the development of steel frames and floors. While it may not be safe to say that steel frames for residences have passed the experimental stage, still the erection of light steel framework no longer is a novelty. Steel frame houses are common in and near most of the large cities in the United States.

Development of steel walls has proceeded more slowly, although interest in the problem has been manifested for many years. European steel interests seem to have progressed more rapidly in the use of sheet steel for walls than have Americans. But if present signs are reliable, this country now is on the threshhold of a period of intensive pioneering in this field.

Improved practice in sheetmaking, an excess of sheet mill capacity, new and improved finishes and coatings for steel and more convenient methods of fabrication should lend impetus to the present efforts to solve the steel house problem. With interests identified with the production and fabrication of shapes, bars, plates and sheets all working harmoniously toward the common objective of perfecting houses of steel that are economical, architecturally attractive, comfortable to live in, durable and easy to maintain, it is probable that the dream of a large new market for steel may some day be realized.

THE INDUSTRIAL DIAL

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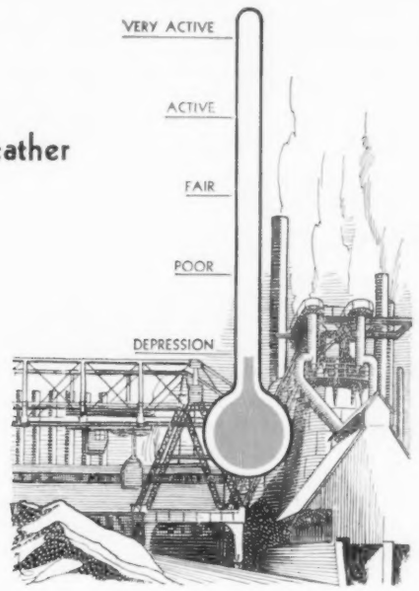
BUSINESS is entering a period in which we may expect more color and action than have characterized the past two months. Important annual meetings of steel companies will be held soon. The Reconstruction Finance Corp. will be functioning before many days have passed. Agreement on railroad wages is overdue. A showdown on the European mess, while perhaps not imminent, is nearer at hand. And finally, industrial activity shows signs of holding its own, if not improving slightly.

Of immediate interest to the steel industry is the Tuesday meeting of the United States Steel Corp. Operating results for the fourth quarter, dividend action and possible clues to the identity of Mr. Farrell's successor lend unusual interest to this session.

Speculation as to the effect of the Reconstruction Finance Corp. has been heightened by the appointment of Mr. Dawes, whose presence at the head of this emergency board lifts it above the category of a Pollyanna experiment. Messrs. Dawes, Mellon, Meyer, Baruch and others will make it go, if anybody can.

At the moment the outlook for business is uncertain, but mighty forces are being mobilized for reconstruction.

Industrial Weather



TREND: *Unsettled*

Where Business Stands

Monthly Average, 1930—100

	Dec., 1931	Nov., 1931	Dec., 1930
Steel Ingot Output	39.3	49.9	59.7
Pig Iron Production	36.8	42.7	62.4
Freight Movement	64.6	74.5	79.1
Building Construction	40.5	48.2	68.3
Automobile Output	37.6	22.2	55.0
Wholesale Prices	71.9	73.6	91.5

The Barometer of Business

Industrial Indicators

	Dec., 1931	Nov., 1931	Dec., 1930
Pig iron output (Daily average, tons)	31,694	36,727	53,732
Machine Tool Index	54.3	50.4	73.1
Unfilled orders (tons)	2,735,353	2,933,891	3,943,596
Ingot output (Daily average, tons)	50,092	63,747	76,136
Dodge Bld., awards in 37 states (sq. ft.)	17,209,800	20,519,300	29,054,600
Automobile output	*110,000	65,000	161,223
Coal output, tons	31,672,000	30,020,000	39,716,000
Business failures; number	2,758	2,195	2,525
Business failures; liabilities	$73,212,950	$60,659,612	$83,683,361
Cement production, Bbls.		8,161,000	8,480,000
Cotton consumption, bales	415,517	428,870	406,207
Car loadings (weekly ave.)	568,305	654,926	695,961

*Estimated.

Foreign Trade

Exports	$184,000,000	$193,555,000	$274,856,000
Imports	$153,000,000	$149,725,000	$208,636,000
Gold exports	$32,651,000	$4,994,000	$36,000
Gold imports	$89,509,000	$94,430,000	$32,778,000

Financial Indicators

	Dec., 1931	Nov., 1931	Dec., 1930
25 Industrial stocks	$121.99	$148.43	$210.85
25 Rail stocks	$29.29	$41.22	$81.27
40 Bonds	$63.48	$72.22	$82.32
Bank clearings (000 omitted)	$28,618,327	$23,769,391	$41,871,881
Commercial paper rate N. Y. (per cent)	4	4	2½
*Commercial loans (000 omitted)	$7,327,000	$7,574,000	$8,449,000
Federal Reserve ratio, per cent	61.9	65	79.2
Railroad earnings	$37,064,372	$64,020,077	$72,227,197
Stock sales, N. Y. stock exchange	50,190,478	37,368,728	58,764,602
Bond sales, par value	$335,205,450	$232,514,000	$265,762,000

*Leading member banks Federal Reserve System.
**November, October and November respectively.

Commodity Prices

STEEL's composite average of 14 iron and steel prices	$30.32	$30.61	$31.74	$26.32
Bradstreet's index	$7.73	$7.91	$9.84	$9.21
Wheat, cash (bushel)	74c	75c	99c	92c
Corn, cash (bushel)	52c	55c	88c	51c
Petroleum, crude (Bbl.)		75c	92c	$2.50

Thumb Nail Sketches Of Business

Railroad Purchases Curtailed

A clear-cut demonstration of how the financial plight of the railroads affects their purchases is furnished by figures issued by the *Railway Age*. Important purchases in 1931 included $50,800,000 for steel rails, $40,500,000 for switches, bolts, spikes and similar material, and $30,500,000 for structural steel, bar iron and steel, etc. The shrinkage in the last three years is indicated in the following comparison:

	Fuel	Iron and Steel Products
1929	$364,392,000	$437,840,000
1930	306,500,000	329,700,000
1931	224,200,000	220,000,000

Business Trend Charts of the Month

Production

Steel ingot production ..... Jan. 18, p. 21
Pig iron production ..... Jan. 18, p. 20
Blast furnace production rate ..... Jan. 11, p. 21
Industrial production ..... Jan. 11, p. 19

Demand

Unfilled orders, U. S. Steel Corp. ..... Jan. 18, p. 22
Railroad car orders ..... Jan. 18, p. 20
Index of machine tool orders ..... Jan. 25, p. 22
Index of foundry equipment orders ..... Jan. 25, p. 21
Building construction ..... Jan. 25, p. 21
Steel Castings, orders ..... Jan. 18, p. 21

Prices

Iron and steel price parity ..... Jan. 11, p. 20
Bradstreet's index of commodity prices ..... Jan. 18, p. 19
Basic pig iron—heavy melting steel ..... Jan. 18, p. 22

Miscellaneous

Foreign Trade ..... Jan. 25, p. 20
Commercial failures ..... Jan. 25, p. 22
Iron and steel imports and exports ..... Jan. 11, p. 21

Effect of Population on Industry

Studies of the trend of population in the United States show that the proportion of persons of middle and advanced age is steadily increasing. In 1880, for instance, the number of persons between the ages of 45 and 64 was only 12.6 per cent of the total population. In 1930 it was 17.4 per cent and in 1970 it is estimated it will be 25.9 per cent. This shift in the proportion of age groups is a factor affecting industry which has not yet been given adequate attention.

Automobile Output

In dropping below the 100,000 mark in October and November of 1931, the record of automobile production in the United States and Canada registered two low points in the past 10 years. These two months were the only ones from 1922 to 1931 inclusive in which the total had fallen below 120,000 monthly.

Foreign Trade in 1931 Shows Marked Shrinkage from Normal Years

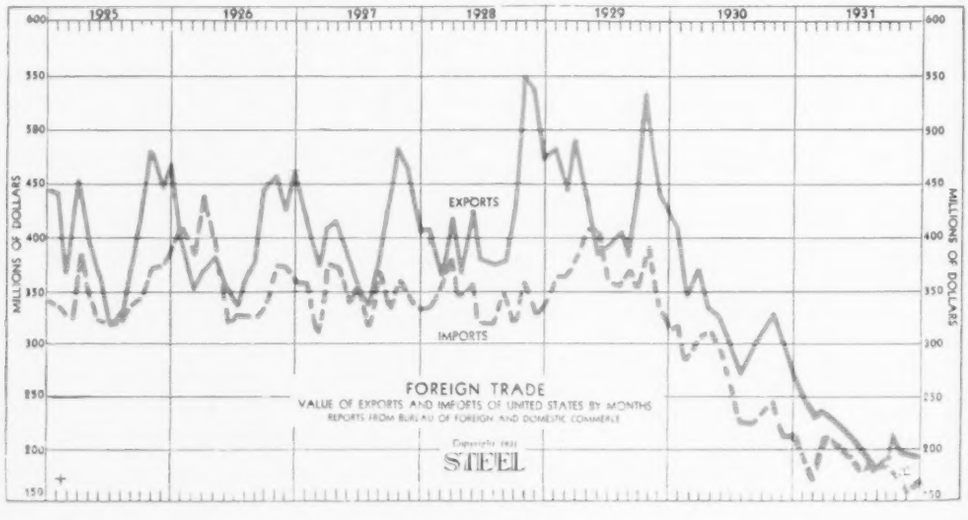
Merchandise exports of the United States in December dropped moderately from November levels, while imports registered a slight increase. According to the figures of the bureau of foreign and domestic commerce, exports in the final month were valued at $184,000,000 and imports at $153,000,000. American foreign trade for the calendar year of 1931, embracing exports and imports fell $2,389,799,000 below that of 1930. Exports for 1931 were valued at $2,424,183,000, compared to 1930 shipments valued at $3,843,181,000, while imports in 1931 aggregated $2,090,107,000 compared to over three billion dollars in 1930. The year ended with a trade balance of $334,076,000 in favor of the United States—the lowest excess of exports since 1910, when it amounted to over 188 million dollars.

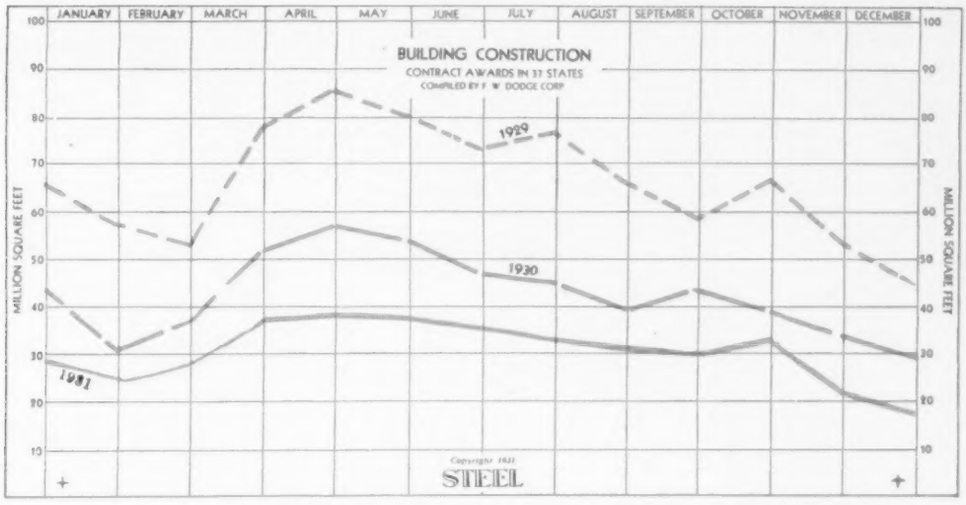
EXPORTS

Dec., 1931 ..... $184,030,000
Nov., 1931 193,555,000
Dec., 1930 274,356,000

IMPORTS

Dec., 1931 ..... $153,030,000
Nov., 1931 149,725,000
Dec., 1930 208,636,000





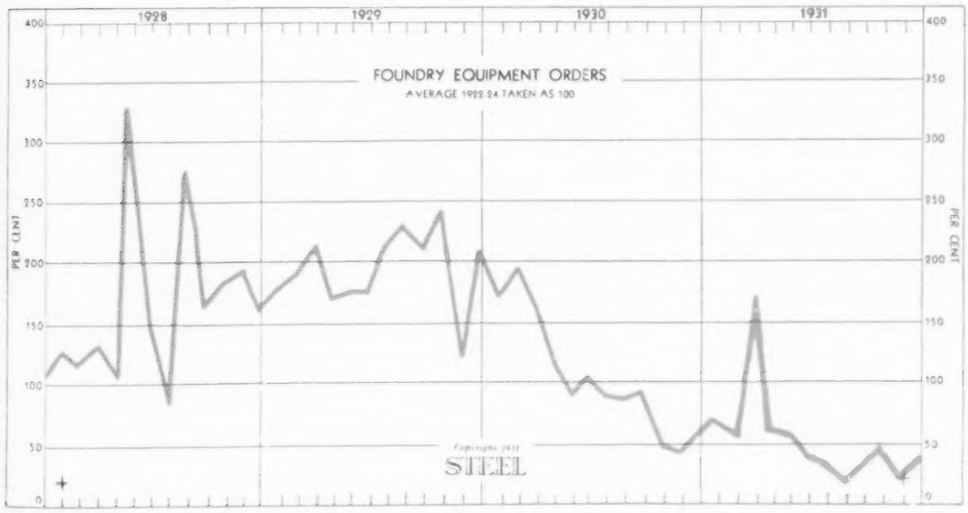
	Square Feet
Dec., 1931	17,209,800
Nov., 1931	20,519,300
Dec., 1930	29,054,600

Building Awards Slump Sharply in Final Month of Old Year

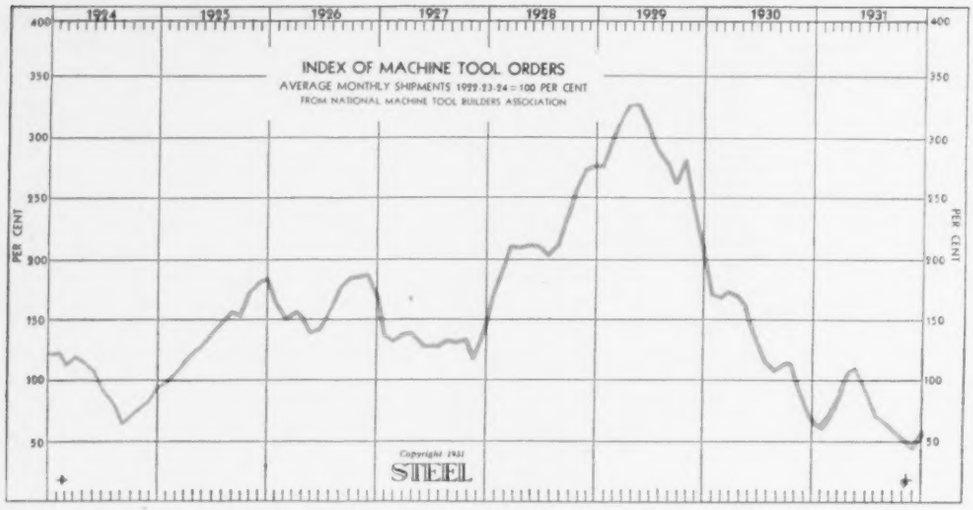
The volume of building construction as measured by awards in 37 eastern states reported to the F. W. Dodge Corp. in December, dropped to a new low for the past year. The final quarter for the year produced contracts totaling $530,141,700 for all classes of construction. Of this amount December accounted for 26 per cent of the total for the quarter. In December contracts were awarded for 17,209,800 square feet compared with 20,519,300 square feet in November and 29,054,600 for December last year. Residential building accounted for 8,753,000 square feet and industrial work for 440,300 square feet of the total. The peak for 1931 occurred in April with 39,380,300 square feet.

Index of Foundry Equipment Orders Rebounds from November Low

After dropping to the near record low figure of 17.2 in November the index of foundry equipment orders in December made a slight recovery. According to the report of the Foundry Equipment Manufacturers association, returns from 17 firms showed orders for the final month at the index number of 26.3. The index for shipments however took a slight drop from 32.9 in November to 24.9 for December. Unfilled orders were 36.5, a drop of nearly 5 points from November. The peak attained in recent years was in May, 1928, when the index reached 335.6. With the exception of March, 1931, when a sharp r » to 174.4 was registered, the trend has been well below 100 since September, 1930.



	1931	1930
Dec.	26.3	59.8
Nov.	17.2	45.3
Oct.	45.9	59.0
Sept.,	31.9	91.0
Aug.	16.9	85.2
July	38.7	90.6



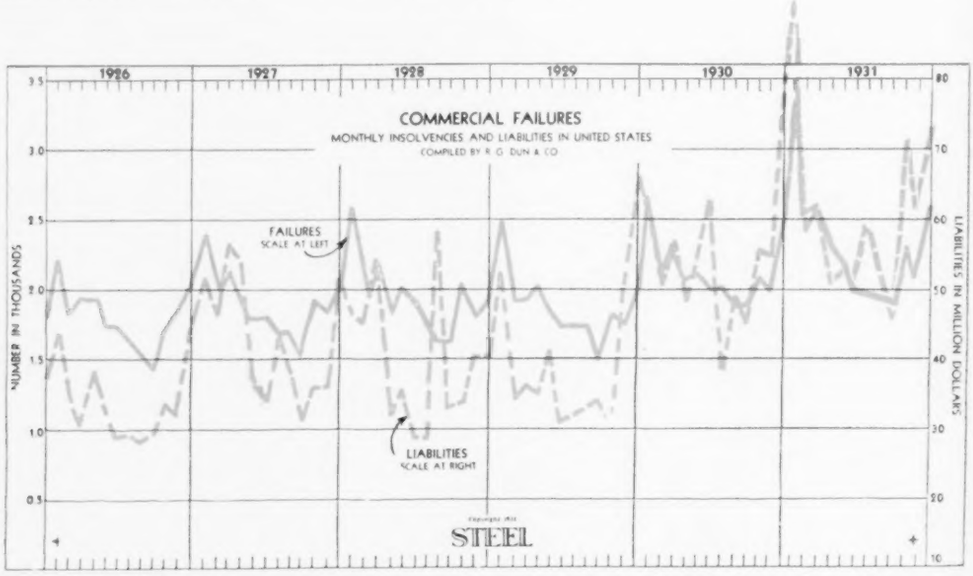
	1931	1930
Dec.	54.3	73.1
Nov.	50.4	113.3
Oct.	57.4	113.3
Sept.	63.1	113.6
August	68.9	110.2
July	74.1	117.3
June	88.6	146.7

Machine Tool Order Index Gains Slightly in December

According to the compilation of the National Machine Tool Builders' association the three months' moving average of machine tool orders advanced from 50.4 in November to 54.3 for the final month of the year. The gain, however, does not carry the index to the level of December last year, when average gross orders were 73.1. The high point of machine tool orders in 1931 was reached in May, with a moving average of 103.3; from that point the trend continued to decline to reach the low level of 50.4 in November. In December the index of shipments jumped from 49.9 to 57.2 while the index of unfilled orders increased from 97.3 to 104.1. The highest monthly average of orders occurred in April, 1929, when the index stood at 330.0.

Commercial Failures Jumps in December, As 1931 Establishes Record

Insolvencies in the United States for the final month of 1931 totaled 2758, with liabilities amounting to $73,212,950. These figures compare with 2195 similar defaults in the preceding month, owing $60,659,612, and 2525 in December, 1930, for $83,683,361. Total insolvencies for the year just closed were in excess of any previous record, both as to the number of defaults and the amount of the liabilities. In all there were 28,285 business failures in 1931 with liabilities totaling $736,309,102. During the past two or three decades there have been several years when business failures were very numerous and losses were heavy. In 1915 the ratio was very high, only slightly lower than that of last year.



Liabilities

Dec., 1931	$73,212,950
Nov., 1931	60,659,612
Dec., 1930	83,683,361

Number

Dec., 1931	2,758
Nov., 1931	2,195
Dec., 1930	2525

SAFE practice in "lighting-off" a gas or oil fired furnace. The operator is using a long-handled torch and is standing to one side. Note also that the furnace door is open for venting while regulating the burner. The torch should be placed in front of burner before the fuel valve is opened

Courtesy, Royal Typewriter Co.

Safety of Personnel an Important Factor in Heat Treating

HAZARDS in heat treating operations, from the standpoint of personnel, may be classified in seven groups: Handling of materials; operations involving the use of furnaces, equipment for quenching, special hardening, drawing and cleaning; and hardness testing. A survey of these phases was undertaken recently by Norman Kyser, safety engineer for the Studebaker Corp., South Bend, Ind., and R. H. Ferguson, safety engineer on the staff of the National Safety council, Chicago, and recommendations were made regarding the control of hazards in these operations.

In the handling of materials, a wide range of shapes and sizes is covered and the general hazards that workmen in this field must face include strains from lifting, contact with corrosive substances, and injuries from cranes, trucks, machines and other equipment. It is essential when parts to be heat treated are conveyed to furnaces in tote boxes or flats that the containers be loaded properly to prevent pieces from falling out while being moved. If material is stacked too high it may fall and cause injury. Proper packing not only will prevent accidents but will aid in loading and unloading, keep material from being scattered over the working area and increase the efficiency of the operation.

Men should be cautioned against lifting heavy parts. In operations where cranes or lift trucks are not provided, but where men must shift material by hand, thorough instruction should be given on proper methods of lifting.

In plants where parts to be heat treated are delivered in containers from the warehouse or from other manufacturing departments to the heat treating department either by trucks, overhead cranes, or by conveyor systems, each of these methods presents definite hazards. Furnace operators should be instructed to stand in the clear during delivery operations by trucks or "trains" to reduce the possibility of being struck and injured by material or equipment. Truck operators should give ample warning to furnace men before starting operations. Many organizations have planned their deliveries along routes which do not traverse active operating departments and this reduces the hazard. Trucks or tractors should

be equipped with suitable warning devices, and rules should be established for the guidance of operators. Suitable warning signals should be provided on cranes to warn men working on the floor and at the furnaces. Supervisors should caution workers against walking, standing, or working under crane loads. All gearing and driving parts of conveyors should be suitably enclosed to prevent workers being injured.

Men handling parts to be charged into furnaces should be equipped with suitable protective clothing. This should include heavy gloves, preferably of chrome leather; safety shoes; and in some instances heavy leather aprons. Clothing of this type will reduce the possibility of lacerations and injuries to the feet, legs and hands. Thin soled shoes should not be worn on the job. Cloth aprons, particularly those made of burlap, should not be used, as cloth material when oily or greasy may catch fire and burn the operator.

Men engaged in furnace operations should be equipped with goggles because of the danger of flying particles. Special attention should be given to men checking inside furnace conditions. Goggles worn by these men should protect against the infra-red rays which are injurious to the eyes.

Instruction Is Essential

When a furnace is new or has been down for repairs the heating operations should be given careful supervision. Before lighting, a furnace should be inspected carefully to determine that the particular equipment is in first-class operating condition. The lighting of furnaces should be conducted according to well founded regulations. Men should be acquainted with the hazards common to the particular fuel in use. In all cases the furnace first should be ventilated to remove any possible accumulation of explosive mixtures. In many cases exhaust fans are used to expel gases prior to "lighting off." In addition, the furnace doors and flues should be opened; this will help to ventilate the furnace and aid in starting the draft. If the doors and flues are open the likelihood of an explosion or a flare-back will be reduced greatly.

In the operation of oil or gas fired furnaces certain general precautions demand observance. In "lighting off" the operator never should stand directly in front of the furnace, but to one side, to avoid being in the path of an explosion, should this occur. Furnace men should wear goggles; one company even requires the wearing of a mask covering the entire face. Operators never should look directly into the peek-hole of the combustion chamber unless absolutely necessary, and then they should stand back at a safe distance and look at it from an angle. This is to avoid being in the path of a flare-back which will travel in a straight line from the opening.

In some cases peek-holes are provided with heavy cobalt-blue glass to protect workers' eyes. It is suggested that a wire gauze be placed in front of the glass with an air space between to enable the glass better to withstand the heat. When a backfire occurs the operator should step away from the side and look down for a few seconds until soot or foreign matter that has been blown out has settled. Furnace flue dampers always should be opened to carry out any unconsumed gases.

If a burner should be extinguished, the fuel supply should be cut off and the furnace thoroughly ventilated to remove any explosive mixture before any attempt is made to relight. If the firing rate is to be altered, the draft should be increased before increasing the fuel supply; and the fuel supply should be decreased before reducing the draft.

ALL too few metalworking plants recognize hazards presented by certain heat treating operations, and properly instruct and equip employes engaged in this work. The accompanying article, based upon investigations made by the National Safety council, has all the semblance of a shop manual on this subject, and is an important contribution to the industrial safety movement.

Where oil is used as a fuel, it should be ascertained if any waste oil has accumulated in the bottom of the furnace before lighting, since any such accumulation may cause an explosion. At frequent intervals all gas and oil lines should be inspected for leaks, but never with a lighted torch. Soap suds or water will reveal the presence of discontinuities in pipe lines, which should be reported and repaired at once. Repair men should notify furnace operators before cutting off the fuel supply, in order to prevent accidental explosion within the furnace, which might result from temporary interruption to the fuel supply.

Attempts to open clogged valves by hammering them should be avoided. Faulty valves or other parts should be repaired or replaced. Oil, gas or air lines never should be placed directly over furnace vents or located so furnace heat in any way can affect them.

Men handling electric furnaces should be thoroughly familiar with this equipment. It is essential that energized electrical parts such as switches and wires be properly installed and protected. If this is given careful consideration injuries from electrical shock may be prevented.

It is a general practice in continuous furnace operations to quench parts in water as they leave the second or quenching furnace. The parts usually slide down a runway into the water. This runway should be covered completely to prevent water being thrown on nearby workers. By covering this slide, escaping steam is forced up and back toward the furnace.

All quenching tanks should be guarded, where the parts are immersed and withdrawn by hand or by hand-operated devices. There is usually a minor explosion when hot parts enter the liquid and the operator should be protected, not only by goggles and sufficient and proper clothing, but by metal guards erected on the tanks as well.

Keep Floors Clean

Slipping may result from oil or other liquids when spilled and many companies have provided wooden-soled shoes to prevent falls. This has proved practical, but the better method is to prevent spills or to clean up such locations when the spill occurs.

In many plants, various materials are given special hardening treatment. The heating mediums that are used present certain hazards which compel thorough education and instruction of operators to prevent injury. Every consideration should be given to the layout of these operations that sufficient light and space be afforded for workers.

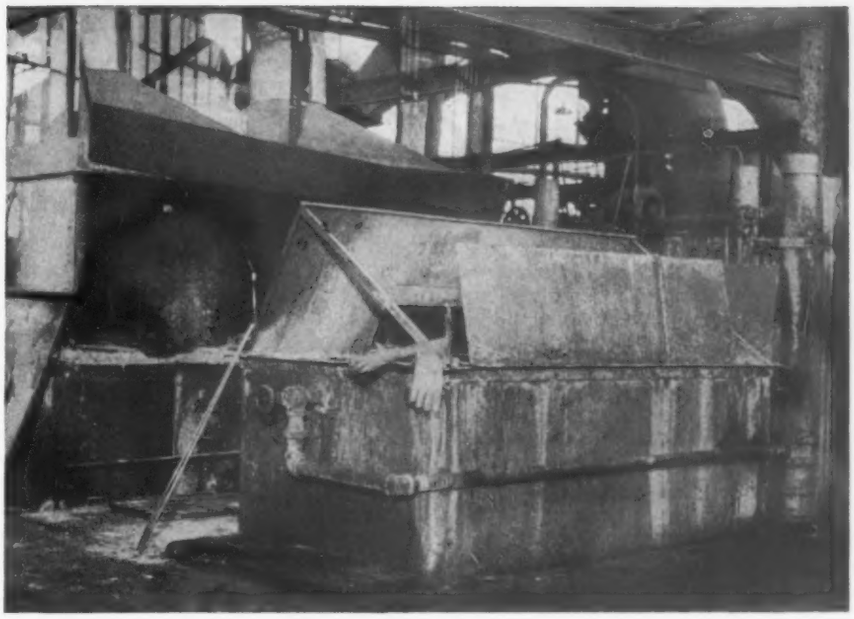
Because of the dust involved in the handling of charcoal or other materials used in pack carburizing, it is advisable to instruct workers in the methods to be followed to eliminate as much of the dust as possible. Several organizations have provided exhaust systems for removing excessive dust. This assists in keeping the working space clean. Other companies require men to wear respirators where they are engaged for any considerable length of time in packing and removing parts.

Mechanical appliances for dumping and inverting boxes should be installed carefully, inspected periodically, and kept in safe operating condition. If conveyor tables are kept in good mechanical condition many injuries will be prevented. This makes it much easier to move boxes

from one place to another. Suitable stops and rails should be installed to prevent the boxes falling from the tables.

The liquid heating medium largely used for thin case hardening is composed of varying amounts of cyanide salts. Work with such solutions is particularly hazardous unless careful instructions are issued and enforced. It is absolutely essential that all operators be thoroughly aware of hazards involved.

Cyanide under certain conditions is a deadly poison. All supplies should be kept locked up and additions to pots should be made only under the supervision of the foreman. It is advisable to place warning signs on containers of cyanide, and at suitable location in the department to warn workers of this hazard. Several organizations provide convenient wash fountains near these operations, permitting men to wash their hands after charging the pots. While lead fumes are not as poisonous as those of cyanide there is a distinct health hazard to men working with the process.



This water quenching tank is provided with splash guards on both sides. The operator, standing between the pots, in the background, and the tank, removes parts from the cyanide solution and immediately submerges them in water. The opening in the guard permits the parts to be placed in the tank; at the same time the operator is protected from the minor explosion caused each time the hot parts contact with water

Ventilation Demanded

Ventilation is essential to remove the fumes from molten cyanide and lead baths. The hood system of removing vapors is in use in many plants. By this method the vapors are drawn up into the hood and removed from the building. Operators should work as far from the pots as possible and the hoods should be placed as close to the pots as possible.

Particular care must be exercised if materials to be treated are cold or damp. If parts in such condition are immersed in hot cyanide baths an explosion may result which usually causes the liquid to be blown from the container. If the operator is clothed improperly he may receive serious burns. In many instances it is a general practice to dry or pre-heat such materials before immersing them in cyanide, by placing them in pre-heating furnaces. There is an advantage in this as the pre-heat furnace increases the production and safety with which the work may be carried on.

Water should not be used to extinguish fires in lead or cyanide because of the explosion hazard. Carbon dioxide extinguishers are to be preferred. All acids must be kept away from the cyanide as the combination may liberate the poisonous hydrocyanic acid gas.

Safe practices in the drawing or tempering operation are quite similar to those already discussed.

In many cases it is essential that parts be cleaned after the heat treating operations. It is the general practice to scale or pickle them in hot sulphuric acid solution. It is advisable to install an efficient ventilating system to remove the acid fumes. This is accomplished easily by a hood exhaust system. The hood is swung over the vat and fumes drawn up and out by exhaust fans. The principal hazard in this operation is that of splashing the acid solution when charging or discharging the metal baskets. There is also danger of serious acid burns when handling carboys in adding acid to maintain the proper strength of the bath.

Water for First Aid

Many organizations provide automatic deluge shower baths at or near these operations. Should a man receive an acid splash or burn, first-aid is necessary. This is best accomplished by washing thoroughly and carefully with a quantity of water; the shower will furnish this immediately. In other instances, buckets or tubs of water are maintained for this purpose. Workers around acid should always wear suitable goggles to protect the eyes. Particular attention should be given to the clothing. Woolen clothing, rubber gloves, goggles, rubber boots and rubber aprons should form part of the equipment.

The principal hazard in all sandblasting operations is that caused by the dust or flying particles of sand. This is a serious health hazard unless operators are suitably protected with fresh air helmets.

Hardness testing creates little or no hazard if proper instructions are issued and enforced. Dropping material on the hands and feet is a principal cause of accidents in this operation. In making a hardness test the material under inspection should be set correctly and held properly so it cannot fly and injure the workers or others. Goggles, safety shoes, and in many cases leather aprons are standard equipment of workers on this operation. Grinding operations should be supervised carefully. All equipment should be inspected periodically.

The National Safety council has tabulated all these precautions in an 8-page industrial safety pamphlet entitled "Safe Practices in Heat Treating," No. Au.-1 of an industrial series of publications.

Furnace Lining Bonded With Magnesia

Development of an improved lining for steel melting furnaces, which is claimed to give promise of a much longer life than present linings, has been announced by the bureau of standards, Washington. The new lining is composed of electrically sintered magnesia bonded with 20 per cent water-ground magnesia, and in severe service tests, melting a variety of ferrous alloys in a rocking-type electric furnace of the indirect arc type, showed a very satisfactory life.

Disadvantages resulting from the use of magnesite linings bonded with iron oxide or basic slags high in iron oxide, which have been known to break up through dissolving of the bond in the melt, are said to be overcome by use of the new type of lining.

Designs Promote Steel Use In Residence Construction

WITH the completion of a welded steel frame residence, the recent announcement that two entirely different types are about to be erected and the filing of patents on still a different type, all in Greater Cleveland, steel is assuming a more important role in building construction. These houses, sponsored by unrelated interests, are indicative of the widespread efforts to promote new uses for steel.

As has been pointed out on many occasions, successful and commercial application of steel to residence construction would create for the material a potential market larger than any single market known today. In point of tonnage it would considerably exceed both commercial building and railroads. Therefore the several designs pioneering the use of steel are of interest.

Frameless Type Announced

The American Rolling Mill Co., Middletown, O., has announced its backing to erection in Solon, O., of what is said to be the first frameless steel-type house, the structure consisting of sheets welded together and insulated. It will be along new lines of structural and architectural design.

This residence will suggest the design of Viennese, German and Dutch modern, although in later projects, houses of more traditional design probably will be adopted. It will consist of eight rooms, two baths and a two-car garage. It was designed for the Insulated Steel Floor & Wall Co., in which the American Rolling Mill Co. has an interest, by Charles Bacon Rowley & Associates, architects, Cleveland.

Exterior of the residence will be asbestos sheet; the interior will be masonite insulation board, a material made of exploded wood fibre. New structural adhesives will be employed in the application of both. A single thickness of steel sheet formed in flat corrugations will stand between the inner and outer walls, the resulting spaces to be filled with either rock wool or exploded slag or limestone. Corrosion will be prevented by the insulation which will eliminate air circulation within the walls.

The floor will be fabricated of sheets bent in Z form, which when overlapped and welded together will make up a floor consisting of conduits. In later designs, these conduits may be utilized for heating purposes, but these possibilities have not yet been worked out.

Approximately 14 tons of steel sheets of 16 to 20 gage in less than 100 partially assembled pieces will be required for the complete residence. Floors will be built up from 28-inch steel strips while the walls will utilize wider material. Later houses of this type are expected to be erected in about two days, but the first one will require more time.

Complete flexibility of material on the job is one of the features pointed out, for instead of cutting pieces to fit, sheet metal workers will slide one over another and weld them as they come. This sleeving of parts is said to save considerable time in construction, and also will provide greater structural strength at the overlap.

Although exterior finish will be asbestos board, a wide variety of other materials can be applied with the structural adhesives, such as slice brick, ashlar, terra cotta, vitreous enamel sheet, stucco and even wood veneer. Metal windows of standard casement type will be used, fitted by standard adapters which will overlap the steel wall material and be welded to it. Doors will be handled in the same way, although wood could be used.

The mantel will be the only piece of wood in this building. The stair rail will be of polished metal. The roof will have a flat canopy supported by steel columns; the roof itself will be made of the same material as the floors, covered with an asphaltic compound. Arrangements are to be made for a garden on the roof. If placed on the market in time, a new continuous floor plug for electrical connections will be installed, this plug making it possible to make connections anywhere along the baseboard.

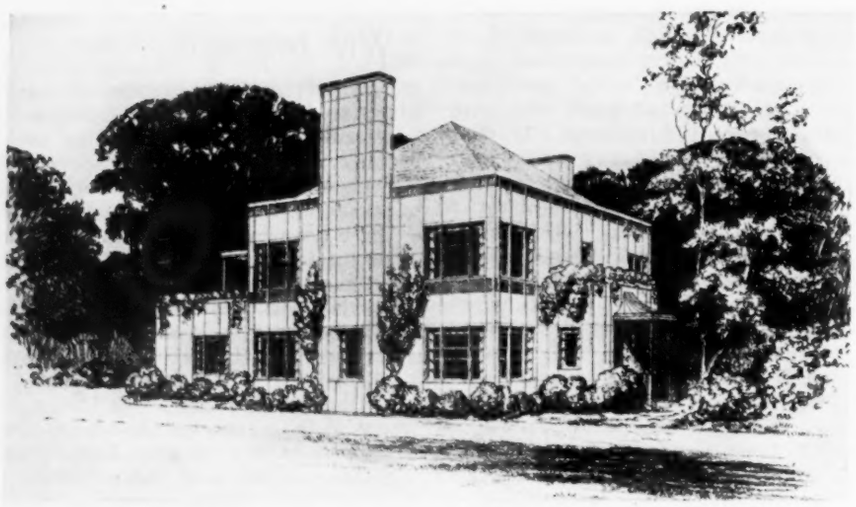
Unit Slab Type

Another new type of residence in which steel plays an important part and in which the units would be fabricated in the shop and assembled on the site, has been developed by J. A. Altschuler, architect associated with L. J. Weiskopf, 7016 Euclid avenue, Cleveland. Patents on the design have been applied for. It is the contention that such houses can be constructed for $3000 or less including the lot, and that the design could be applied to larger residences with savings ranging from 25 to 35 per cent.

Plans call for a unit slab system, using a specially designed frame of sheet steel with aluminum paint finish and an insulating filler poured within the frame. Units would be secured to each other by concealed bolts spaced about 20 inches apart. The frame, according to the designer, would be built in the shop, transported to the site and erected on the foundation within a week. The foundation would be lighter because of the 50 per cent reduction in weight of the house. Wiring and piping would be concealed in the frame.

For the exterior or interior bearing walls, the plans call for a unit slab 12 inches wide and 3 inches thick, from 8 to 10 feet long, made of No. 10 gage sheet metal carrying its poured insulation. For outside face finish, brick, tile and stucco are permitted, and for the inside, a skim coat of plaster of paris, waterproof paint or paper.

Floors would be made of units 12 inches wide, 4 inches thick and from 8 to 12 feet long with the wearing surface made of cement mastic,



Architects' drawing of steel-frame house with exterior of porcelain enameled steel sheets, and roof of enameled steel shingles

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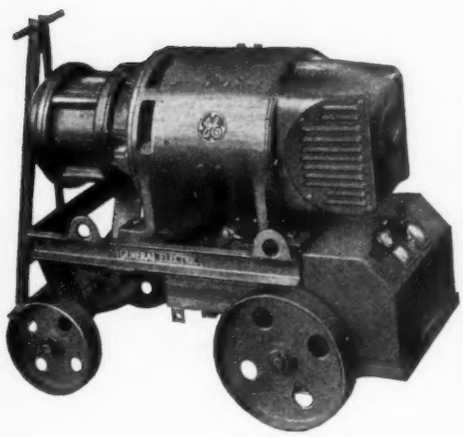

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wood, tile or other suitable material. The unit roof slab would be smaller, finished outside in plastic imitation of roofing shingles.

Partitions which are nonbearing would be 11¼ inches wide and 1½ inch thick, made of No. 20 gage sheet steel. Windows and their frames and door frames would be No. 16 gage sheet steel. Doors would be of hollow sheet steel construction, or wood could be used if desired.

Partitions Could Be Changed

The stairs would be made in the shop and assembled on the job; kitchens would be of sheet steel or wood with provision for such built-in features as desired. Furnace flues would be built of the bearing wall slabs. It is claimed that the changing of nonbearing partitions would be comparatively simple.

Late in December the Ferro Enamel Corp., Cleveland, announced that an eight-room residence, constructed entirely of porcelain enamel on steel, would be erected shortly in a Cleveland suburb. In sponsoring the construction of this house, the aim of the Ferro Enamel Corp. is to develop a thoroughly practical and economical completely fireproof residence to meet the growing demand for mass production homes largely fabricated in advance of erection.

This residence, an architect's conception of which is shown in an accompanying illustration, was designed by Charles Bacon Rowley & Associates, Cleveland, who also executed designs for the Insulated Steel Floor & Wall Co., mentioned previously. The porcelain enamel parts will be manufactured by the Louisville Enameled Products Co., Louisville, Ky., with the steel being supplied by the American Rolling Mill Co., Middletown, O. Important features in the construction of this residence were described in the Dec. 28 issue of STEEL, Page 27.

It is to be recalled that there was constructed in Cleveland Heights, O., last summer a residence in which the entire frame was of arc welded construction. This house, described in considerable detail in the July 9 and July 23 issues of STEEL, was completed recently. It was designed by George H. Burrows, erected by the McKay Building Co. and welded by the Lincoln Electric Co., all of Cleveland.

Manganese Has Stabilizing Effect on Critical Austenitic Alloys

RECENT X-ray studies have resulted in at least a partial interpretation of the effects of a transformation phenomena noted several years ago in iron-manganese alloys and not found in other iron-base alloys, according to Howard Scott, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., who spoke before the institute of metals division of the American Institute of Mining and Metallurgical Engineers in Boston, last September.

Normally Unstable

The effect of manganese on the Ar_3 transformation, the speaker observed, is of timely interest because of its bearing on the critical compositions of austenitic alloys, the applications of which are now being greatly extended. It is known, Mr. Scott continued, that the properties of these alloys are unstable unless the Ar_3 transformation occurs at a temperature considerably below atmospheric and that manganese is extremely effective in depressing the temperature of this critical transformation.

In his recent studies the speaker has been endeavoring to establish a simple general relation which expresses the location of the Ar_3 quantitatively in terms of the content of the common alloying elements used in steel, and in his remarks he covered observations thus far.

The speaker presented differential expansion curves taken on Fe-Mn alloys covering in small steps a wide range of compositions. The curves were plotted so as to bring out the irreversible transformations associated with phase changes. Several types of these changes were pointed out, as follows: (1) The Ac_2 transformation or change from ferrite to austenite occurring with a decrease in volume during heating and the reverse change on cooling, Ar_2; (2) a new transformation designated as A_5, which is accompanied by an increase in volume on heating (Ac_5) and a corresponding contraction in cooling (Ar_5); (3) an irreversible contraction on heating found only in a high-carbon alloy after rapid cooling from a high temperature; and (4) an irreversible expansion found only during the heating of alloys showing the Ar_3 transformation at a temperature which is nearly independent of the manganese content.

Particular attention, Mr. Scott declared, was paid to the location of Ar_3 because of its relation to the stability of austenitic alloys. The relationships between the temperature of the start of Ar_3 and compositions of Fe-Ni-Mn-C alloys were expressed in a single curve in such a manner that the temperature of Ar_3 could be readily calculated from the composition of alloys differing widely in composition.

Previous work indicates that the new transformation, Ar_5, is that from the gamma to the epsilon phase, he declared. X-ray spectrograms of an alloy for which the temperature range of this change was almost entirely below room temperature failed to show a strong epsilon line either before or after cooling in liquid air. Decided changes in density and microstructure were observed after cooling comparison specimens in liquid air.

Carbide Precipitation

The large permanent contraction found on heating a high-carbon austenitic alloy was shown to be caused by precipitation of carbide. It was followed on heating about 550 degrees Cent. by a corresponding irreversible expansion associated with the re-solution of carbide. This phenomenon, Mr. Scott declared, provides a useful means for studying solid solubility and precipitation-hardening phenomena.

The expansion anomaly on heating is shown to be caused by the transformation of residual austenite into ferrite.

Testing Materials Society Issues Standards Index

The American Society for Testing Materials has issued a 1931 Index to A. S. T. M. Standards and tentative standards. This booklet constitutes a combined index to all standards and tentative standards in effect as of September, 1931.

It is designed to be of service both to those familiar with the society's standards and those who are not. Its value to the former group is in locating any specification or method of test in the bound society publication in which it appears. To both groups the index is a convenient reference in ascertaining whether or not the society has issued any standards on a specific subject.

Copies will be furnished without charge to those sending requests to the society's headquarters, 1315 Spruce street, Philadelphia.

An address entitled "Looking Ahead" will be presented by Leonard Dreyfus, president, United Advertising Corp., New York, at the January meeting of the New Jersey Foundrymen's association, Wednesday evening, Jan. 27, at the Downtown club, Newark, N. J.

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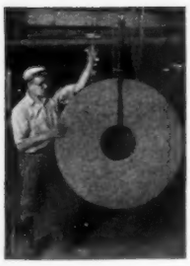

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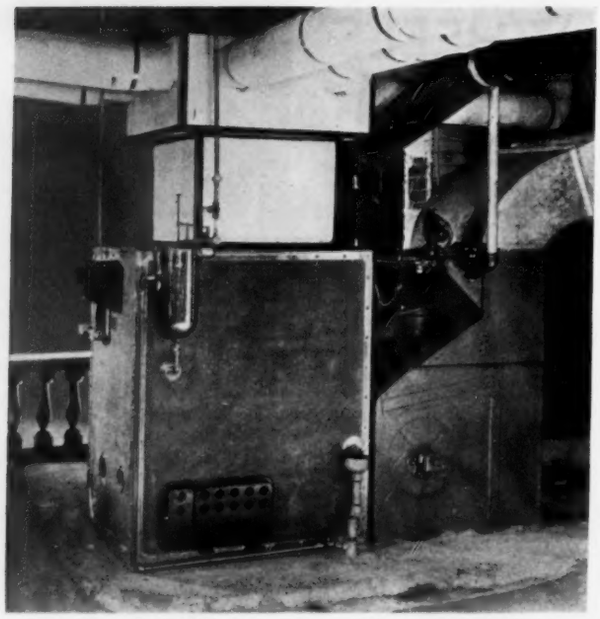


THIS modern type of warm air furnace filters, heats, humidifies, and circulates the air by means of an electrically operated blower. Air-conditioning furnaces require considerably more steel than the conventional type in which a heavy cast-iron heating unit is housed in a circular galvanized sheet steel casing

Large Uses of Steel In Small Ways

209th Article ◆ Warm Air Furnaces

MORE than 74,000 net tons of steel is required in the normal annual production and installation of warm air furnaces in the United States. The National Warm Air Heating association, Columbus, O., reports that the output in the years 1925 to 1930 averaged 468,000. The number was reduced sharply in 1930 and again in 1931.

The association, in co-operation with the Sheet Steel Trade Extension committee, Cleveland, determined that the annual consumption of steel was 74,556 tons, approximately 318 pounds for each installation. This includes the steel parts in the furnace, mainly the casing, and the galvanized pipe leading from floor to furnace, but not the tin plate used for pipe and wall ducts.

15 Per Cent All-Steel

Authorities in the industry estimate that 15 per cent of the furnaces are built almost entirely of steel, and the Trade Extension committee stated that if all were so built 147,556 tons additional would be required.

The conventional type of warm air furnace contains a heavy cast iron "stove." A stove weighing 1000 pounds may be enclosed in No. 26 or No. 28 gage galvanized sheet steel weighing only 100 pounds. In a steel furnace of equal size the weight of the casing remains 100 pounds, but the interior unit is reduced to 400 pounds, by using open-hearth steel about 3/16-inch thick for the heating drum and No. 12 gage open-hearth steel for the radiator, these parts being welded or riveted. The only parts made of iron in such a furnace are the grate frame and bars and the front.

A manufacturer of both types who has endeavored to increase his output of steel furnaces informs STEEL that the latter have not proved wholly successful in some sections of the country. He uses copper-bearing steel. Nevertheless, he mentioned "condensation of moisture in the summer causing rust" as one of the complaints against such furnaces. Though steel furnaces are lined with fire brick the heat sometitmes causes the steel to warp. Manufacturers using exclusively cast iron stoves claim "the first film of rust on iron inhibits further action of rust," and the iron withstands the heat.

Some manufacturers using steel exclusively say the heavy plates and riveted construction in their furnaces are far more durable than cast iron parts packed with asbestos cement at the joints. One advertises that his furnace can be used as a crucible in which to melt cast iron without cracking or buckling the steel.

The relative merits of steel and cast iron for the heating units in the average size warm air furnace for domestic heating purposes have been a matter of controversy for years, and while it has been going on a new development has occurred, promising real expansion in the use of steel. This is in the production of air conditioning furnaces.

The weight of the sheet steel casing and base for such furnaces ranges from 300 to 1000 pounds for residences in the $7000 to $10,000 class, up to 1500 to 3000 pounds for those built for $25,000 homes. The heating units may be cast iron or steel, and various fuels may be used, though gas is preferred, and it is claimed that in these furnaces the use of gas is just as economical or more economical than coal.

Used in All Seasons

The air is filtered, warmed, humidified and forced through the pipes and rooms. These furnaces have appliances made of steel, such as the blower and control, the filter frames and screens. In the summer the furnace is used for humidifying, filtering and circulating the air.

Old model furnaces are not replaced by home owners as quickly and eagerly as are old automobiles, and some of the conventional types of furnaces are so simple and dependable that they may never be displaced entirely, despite certain obvious disadvantages. Yet the modern air-conditioning furnace is as far ahead of the ordinary warm air furnace as the latter was ahead of old-fashioned sitting-room base-burner, and the realization of this undoubtedly will lead to its more general use, and consequently to the larger consumption of steel.

William S. Lee Heads Engineering Council

William S. Lee, president of the W. S. Lee Engineering Corp., vice chairman of the Duke endowment, and an officer and consultant, with headquarters in New York, of several public utility and industrial enterprises, was elected president of the American Engineering council at the annual meeting of the council in Washington, Jan. 14-16. Mr. Lee succeeds Carl E. Grunsky.

Other officers elected by the council include: Vice president, R. C. Marshall Jr., B-W Construction Co., New York; re-elected vice president, L. B. Stillwell, consulting engineer, New York; and treasurer, Farley Osgood, consulting engineer, New York.

A significant development at the meeting was the taking of steps to align the engineering profession in support of legislation to create an Administration of Public Works, in accordance with the recommendation of President Hoover in his last message to congress.

Welding

Whether arc, spot, butt, seam, projection or flash welding is employed, Youngstown sheets weld easily and insure a clean, strong joint.

At the right is pictured an arc welding operation in the manufacture of one of the thousands of products in which the welding qualities of Youngstown steel sheets are being constantly demonstrated.

YOUNGSTOWN SHEETS

Describe in detail the qualities you need in a sheet and you will find that Youngstown can match them with surprising accuracy.

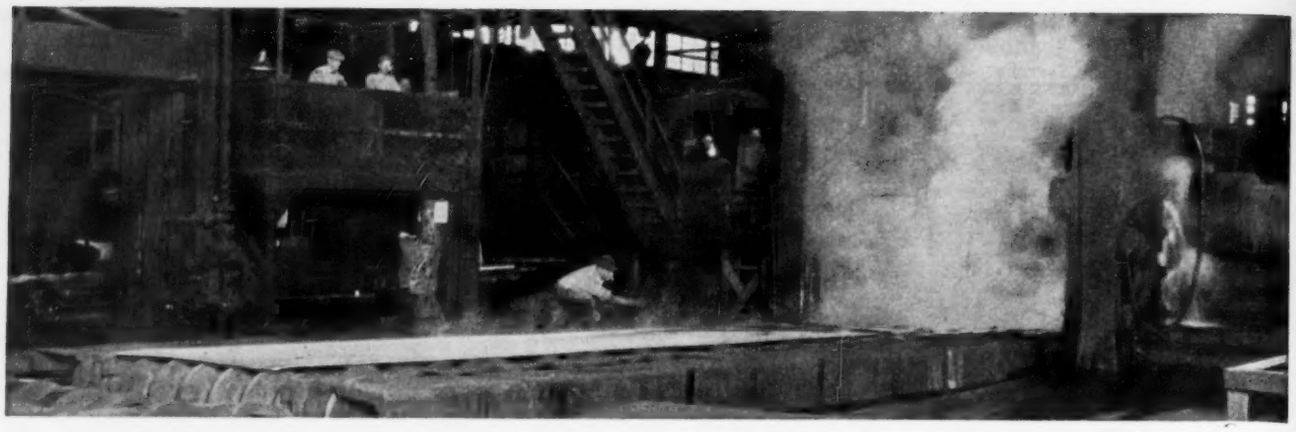
THE YOUNGSTOWN SHEET AND TUBE COMPANY

General Offices: YOUNGSTOWN, OHIO

One of the oldest manufacturers of copper-steel, under the well-known and established trade name "Copperoid"

YOUNGSTOWN

SHEETS FOR EVERY PURPOSE .. INCLUDING YOURS



PROGRESS IN STEELMAKING

COKE oven gas with sulphur, oxygen and moisture eliminated and with a 60 per cent nitrogen content, is used by an Ohio stripmaker to maintain a nonoxidizing atmosphere in bright annealing. The gas is introduced into the bell-type electric annealing furnaces at 1½ ounces pressure.

FOR all practical purposes when gas-cutting steel, the proper temperature of the metal should range between 500 and 600 degrees Fahr. for the most efficient use of oxygen to obtain the correct penetration, and to leave the steel in satisfactory shape metallurgically.

♦ ♦ ♦

High acceleration and deceleration of a 44-inch slabbing mill recently built in this country are afforded by the comparatively low inertia and fast field response of the 10,000-horsepower twin motors without causing high starting and reversing power currents. On account of the quick motor response the slab is kept close to the mill, thus reducing the time interval between reductions.

♦ ♦ ♦

Selsyn transformers and thyratron tubes now are utilized for controlling screwdowns automatically. For full-automatic preset operation a number of selsyn transmitters, one for each pass, are mounted on a panel and provided with calibrated dials which may be set for any desired roll opening. A selsyn receiver is connected mechanically to the screwdown motor, and when this receiver is electrically connected to any one of the preset selsyn transmitters a system of thyratron tube relays takes control of the main screwdown motor and causes it to automatically raise or lower the top roll until the roll opening corresponds exactly to the setting of the preset dial for the pass. A master switch in the pulpit, with a number of positions corresponding to the number of passes, permits the roller to connect the mill selsyn receiver to any one of the preset selsyn transmitters.

♦ ♦ ♦

Bright annealing high-carbon coiled strip steel in an atmosphere of purified city gas now is being practiced at a wire plant in Massachusetts in a bell-type electric furnace.

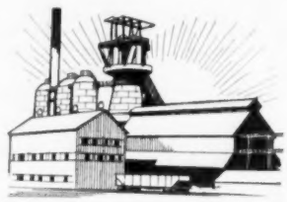
♦ ♦ ♦

After 672 hours operation on an 18-inch continuous strip mill lignumvitae bearings showed ⅜-inch wear on the surface compared with an average life of about 80 hours running time of metal bearings formerly used.

WHEN the open hearths of an Ohio steelmaker are to be shut down for a period of up to six months, the bottom of each furnace is covered with about a 4-inch layer of coke breeze as an aid in preserving the heat.

♦ ♦ ♦

Delivering sheet packs from both sides of a continuous furnace to the hot mill without jamming and in accurate alignment now is possible by the use of a recently designed 2-way conveyor. The welded structural frame is equipped with ball bearing wheels having a continuous load rating of 300 pounds. The pivoted switch or conveyor sections are raised or lowered automatically and alternately by remote control so as to receive the heated packs from either side of the furnace.



AUGERS used for drilling the solidified clay in iron notches of blast furnaces when coated on the surface of each flute for about ½-inch with wear-resisting alloys, will drill six times as many holes without being dressed as a hardened steel bit.

♦ ♦ ♦

Cleaning checker chambers at one open-hearth plant in this country operated on producer gas is accomplished by sand blasting while heats are being worked. Sand is blasted into the checkers through a ¾-inch pipe and then is scraped out of a manhole.

♦ ♦ ♦

To avoid binding steelmakers to tight specifications, some buyers of certain grades of steel specify their tonnages over a wide spread of carbon, subdividing this in ranges of 0.05 per cent. This arrangement greatly assists open-hearth melters in meeting the carbon requirement and avoids delay in making delivery to the customer.

♦ ♦ ♦

Soaking practice followed by a steel producer in Pennsylvania consists of heating the ingot to 2000 degrees Fahr. and then allowing it to soak ½-hour per inch of thickness prior to rolling.

Welding ferrous and non-ferrous metals and alloys

LINDE PROCESS SERVICE ASSURES DEPENDABLE RESULTS

IF you are a user of Linde Oxygen you are privileged to call upon Linde Process Service for assistance and advice in welding any commercial metal, ferrous or non-ferrous.

This service brings to your problems the wealth of welding experience Linde has gained over many years of pioneering the oxy-acetylene process. It will effectively supplement the work of your own engineers. It will help you organize your welding operations for maximum speed, economy and dependability.

In short, it translates proved methods and well-established laboratory findings into actual factory or field operations. Here are some of the things Linde Process Service has done:

It cooperated with aircraft engineers in oxwelding aluminum sheet into a finished product accurate to one-thousandth of an inch.

It helped a chemical plant fabricate copper coils by bronze welding . . . which coils were resistant to corrosion from acetic acid and prevented losses of vapor or condensate.

It showed another manufacturer how to weld chrome-nickel exhaust piping for effective resistance to the corrosive action of exhaust gases.

These examples, selected from thousands, illustrate the versatility of Linde Process Service. They show why users of Linde Oxygen gain much extra value from their use of the oxy-acetylene process.

THE LINDE AIR PRODUCTS COMPANY

Unit of Union Carbide and Carbon Corporation

126 Producing Plants UCC 627 Warehouse Stocks

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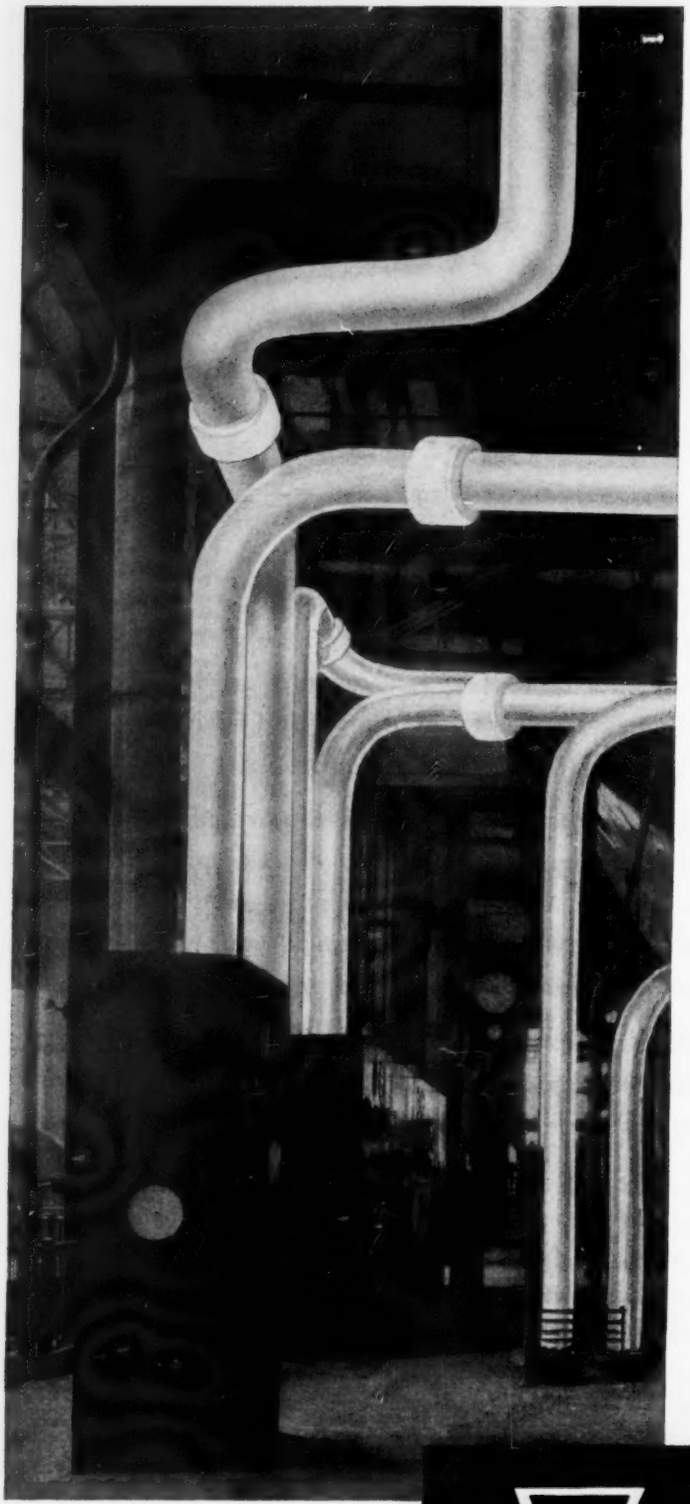


THE MODERN ANSWER TO *Modern Pressure and Temperature Problems*

•

Steadily increasing pressures and temperatures in modern power plants have necessitated the production of super-strength piping to resist super-stress and superheat. Pittsburgh Seamless Power Piping has measured up to these modern demands very successfully in many large power systems where extra durability and assured safety are essential requirements. Besides possessing a tested surplus of strength, it is especially adaptable to bending and flanging. Available for immediate shipment from large mill stocks in the widest range of sizes, lengths and strengths.

Made to A.S.M.E. requirements, also A.S.T.M. A-106-29 in a wide variety of sizes and wall thicknesses.

P

PITTSBURGH STEEL PRODUCTS COMPANY

DIVISION OF Pittsburgh Steel Co

Pittsburgh Seamless Piping

Pittsburgh New York Detroit Chicago St. Louis Tulsa Houston

Scanning the Technology of Steel

A Digest of Important Developments in Scientific Research, Engineering Progress and Operating Procedure Pertaining to the Production, Processing, Application and Performance of Steel

Galvanizing Pots

The heat intensity problem in galvanizing pots by Wallace G. Imhoff, in Industrial Gas, January, 1932, p. 7, 2½ pp., 2 illusts.

The author points out a series of definite relationships between the various elements encountered in galvanizing, and shows how the maintenance of these relationships, or the correct ratios between the type of fuel used, its speed of combustion, the volume of production put through in a given time, metal reserve, metal capacity in the pot, type of burners used, flame characteristics, etc., constitutes the difference between efficient and poor operation, or between success and failure. The problem of pot duration, in which there is still a wide variation, is shown to be primarily dependent on proper heat distribution, that is, the avoidance of undue heat concentration.

STEEL, 1-25-32

Sheet Rolling

Explanation of why steel sheets are thicker in the center than at the edges, by W. H. Melaney, in Blast Furnace and Steel Plant, January, 1932, p. 61, 2½ pp., no illusts.

It is recognized that in the rolling of thin sheets, the metal will be of thicker gage at the center than at the edges. This condition has been explained by attributing it to a spring or bend in the rolls. The author scouts this theory, declaring that rolls of the two-high type are of such massive proportions as to preclude any spring.

The theory is advanced that the increase in gage thickness at the center of a sheet is caused by molecular flow. In the rolling of a sheet molecules of the steel flow sidewise as well as lengthwise, but to a smaller extent. When the side flow of molecules starts they flow in two opposite directions—from the center toward each side. The molecules in the center are resisted in their motion by all those from the center to one side of the sheet, and this takes place both sides of the center with the result that the molecules at the center are forced to pile up on one another. As the flow starts sidewise the resistance becomes gradually less as molecules approach the sides of the sheet, resulting in a gradual reduction of the thickness of the sheet from the center to each side.

When the metal emerges from between the rolls elastic restoration takes place in proportion to the amount of stress set up, and as this was greater in the middle than at the edges, due to the piling up of molecules, the metal comes back more in the center and produces the heavier gage.

STEEL, 1-25-32

Hot Welding

Advantages resulting from use of the hot welding process, by Gilbert E. Doan, in Metal Progress, January, 1932, p. 56, 6 pp., 5 illusts.

The hot welding process utilizes a current as high as 750 amperes and a voltage as high as 45, two or three times the current and voltage ordinarily used with either bare or covered electrodes. The net effect of this intense heating of the weld seems to be that a larger volume of metal is molten at the joint at all times and this greater amount of molten metal, lying under a layer of molten slag, solidifies more slowly and has more opportunity to rid itself of gas and slag inclusions. A longer and thereby steadier arc also is employed, permitting a straight, even welded seam.

The mechanism of electric arc welding is described, as well as the action of bare and coated electrodes upon the deposited metal. Exclusion of atmospheric gases from the weld metal, accomplished by the coating on the electrode, appears to have been responsible for the major increase in ductility of welds achieved by present processes.

STEEL, 1-25-32

Cold-Drawn Tubing

Structure of cold-drawn tubing, revealed by X-ray inspection, by John T. Norton and R. E. Hiller, a paper to be presented at the February, 1932, meeting of the American Institute of Mining and Metallurgical Engineers in New York, 14 pp., 12 illusts.

Results of this X-ray investigation indicate that in cold-drawn low-carbon steel tubing the structure is intermediate between that of a wire and a sheet. If reductions in wall thickness and circumference are essentially of the same magnitude, the crystals are aligned so that each has a 110 axis parallel to the axis of the tube, but the arrangement is random about this axis. This is equivalent to the structure in wire.

In case the tube has been reduced largely in wall thickness, the structure is similar to that found in a sheet, and the crystallites are arranged so that a cube face is parallel to a plane tangent to the tube wall, and a 110 axis is parallel to the tube axis. Results have indicated also that the structure is independent of the method of reduction, and depends only upon the dimensional changes which have taken place during the reducing process. The differences in the products of various reduction methods are ascribed to surface conditions rather than to interior structure.

STEEL, 1-25-32

Deep Drawing

Progress in deep-drawing operations, in Automotive Industries, Jan. 2, 1932, p. 22, 1 pp., 2 illusts.

Deep drawing has seen revolutionary changes. Stampings that were considered impossible several years ago are routine matters today. Of course these improvements are not accidental; they have resulted from painstaking research and constant development. Many factors have influenced development of the art to its present level, including metallurgical control of deep-drawing steel, better knowledge of the behavior of sheet steel, utilization of more powerful presses, and improved shop practice.

Some of the best examples of current practice are to be found in the press shops of automobile body plants. Probably no other industry can match the stamping problems of a body plant when it comes to size of work and intricacy and bulk of dies. Some interesting stamping work done at the plant of a large manufacturer of steel bodies is discussed briefly.

STEEL, 1-25-32

Machine Tools and Plant Equipment

«Without machine tools modern machinery could not be built.»
—Joseph W. Roe

Designs Full Line of Roll Forming Machines

Kane & Roach Inc., Syracuse, N. Y., has developed over the past year a complete line of roll forming machines for the cold working of strips. Plans were worked out with the idea of supplying a machine whose basic design permits maximum adaptability in making such individual changes as are needed for a specific job or class of work. An example of this is the unit shown in the accompanying illustration.

In this machine "square" gearing is employed to cover the range of depth of sections required, outboard housings are adjustable for width of sections, upper shafts are quickly adjustable by handwheels and spur gearing. The buyer's preference was manifested in a stipulation that no spur gears be overhung, and the primary drive should be by means of bevel reduction from a line shaft. These changes were possible with slight alterations to existing patterns and the addition of a few new ones.

Square gearing provides a generous adjustment of the vertical center distance of the rolls without losing the practical working mesh of the gear teeth. Therefore, the shallow shapes can be formed on rolls of small diameter which is economical, and large diameter rolls can be used to form deep sections without any change whatever in the gearing or other parts of the machine. On the other hand, when extremely deep shapes are formed, or a section becomes deep in the last few rolls only, as many as required of the top roll gears can be quickly converted into direct drive by the use of large diameter top roll gears. This allows small diameter rolls to be used to the greatest possible extent.

The unit is equipped with roller bearings at all points in the drive, roll shaft bearings alone being of bronze. Outboard housings are readily removable and the bearings are lubricated from sight feed oilers which facilitates quick change, since no oil lines need be disconnected.

◆

Unit Designed for Lifting, Carrying and Tiering

Clark Tructractor Co., Battle Creek, Mich., has just placed in production five new models of truck lifts as an addition to its line of materials handling equipment. These include the tilt truck shown in the illustration herewith. Two and three-ton sizes are offered in this particular unit.

The new tilt truck pushes its tapered steel fingers under boxes, crated machinery, or baled materials, tilts them to a safe carrying position, conveys them to shop, warehouse, or shipping platform and tilts forward at a desired height for tiering. Tin plate, wallboard, baled paper and other materials may be lifted, carried and tiered with this versatile truck.

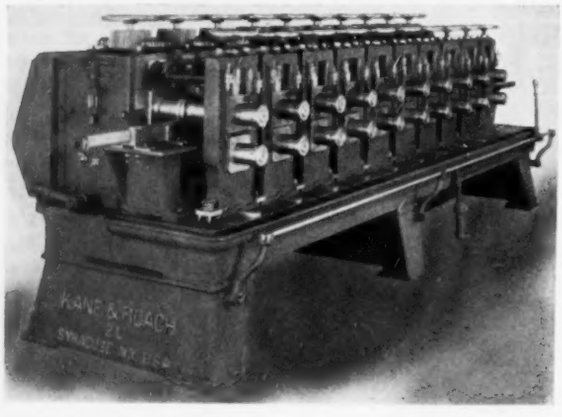
Lifting and tilting mechanism is actuated by hydraulic pressure supplied through an oil pump driven by the tractor engine. Solid tires with which the unit is equipped, support the load, and all four wheels participate in the steering. Maximum height of the lift for both sizes is 50 inches. Speed ranges from one to six miles per hour.

◆

Motor Base Equipped with Adjustable Arms

Rockwood Mfg. Co., Indianapolis, has developed a new motor base for its short center drive. Adjustable arms on which the motor is mounted are incorporated, enabling the motor to be so located, as shown in the accompanying illustration, that the belt tension is adjusted exactly to the load and motor requirements.

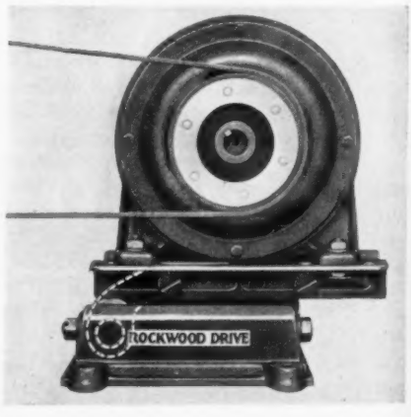
When installed the base is located in the position dictated by the desired center distance, the pivot shaft moved away from the end of the base, and the adjustable arms moved one-third of the distance outwards away from the pivot shaft. Thus there is ample room for any movement of the



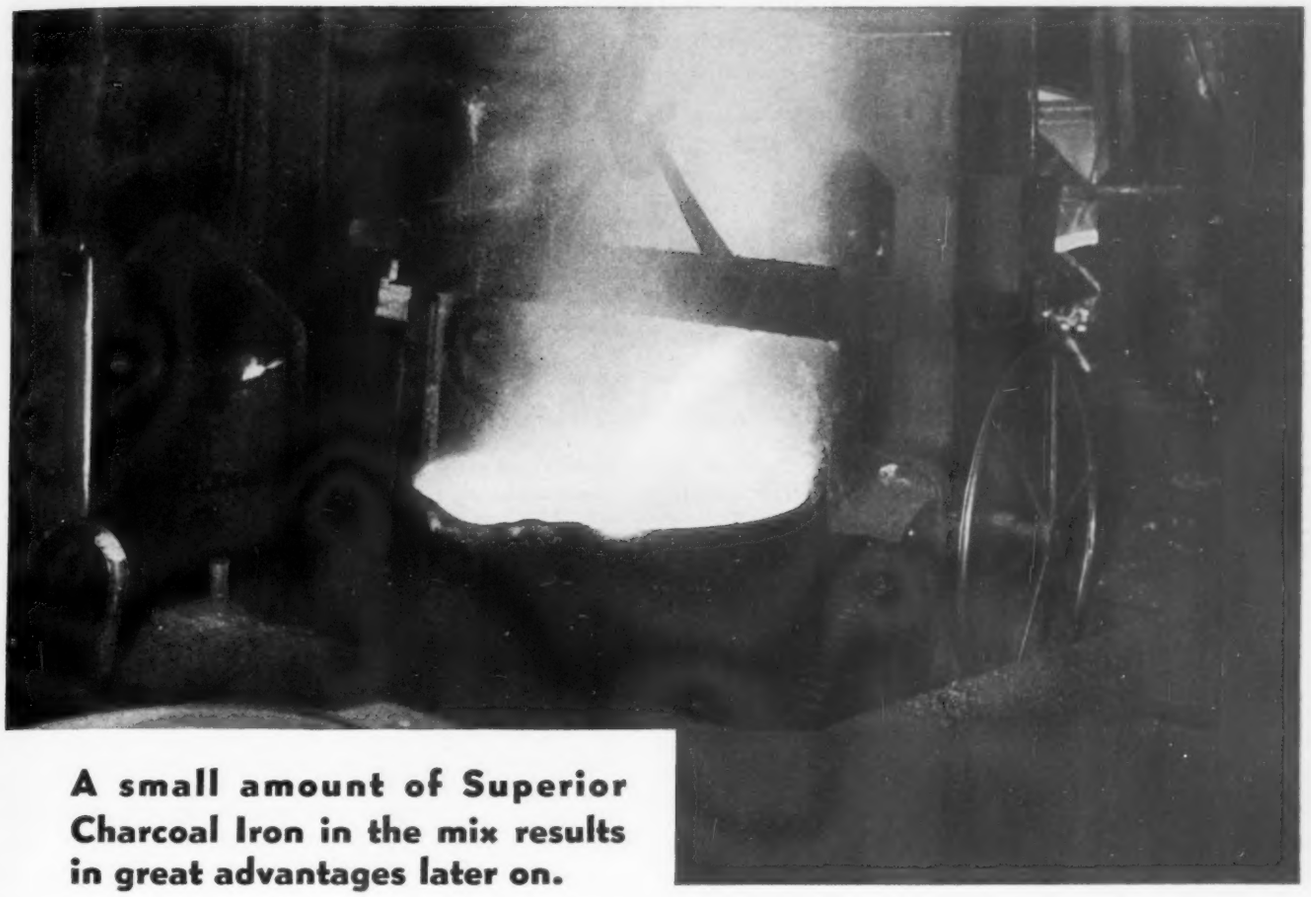
Tilt truck (above) with finger lift is manufactured by Clark Tructractor Co.

Roll forming machine (left) for cold working of strips, built by Kane & Roach Inc.

Rockwood motor base (right) incorporates facilities for adjusting belt tension



Great Oaks from little acorns....



A small amount of Superior Charcoal Iron in the mix results in great advantages later on.

15% to 20% of Superior Charcoal Iron in the mix—not much change in the iron of your castings. But what a difference it makes in the qualities of your finished castings—in the product you turn out!

Castings that contain a small percentage of Superior Charcoal Iron are stronger. They are better able to withstand unforeseen strains, and to turn out a product that will stand up under stress.

More than that, Superior Charcoal Iron castings have greater density and toughness . . . less shrinkage . . . more uniformity . . . easier machinability. And your foundry will have less scrap loss—a production cost item worth considering.

These extra casting qualities are yours by the addition of a simple phrase to your casting specifications: "All castings to contain at least 15% to 20% Superior Charcoal Pig Iron."

SUPERIOR CHARCOAL IRON COMPANY
Grand Rapids, Mich.
Debevoise-Anderson Co., Inc., *Eastern Representative*
New York · Boston · Philadelphia

YOUR CASTINGS . . . *made with Charcoal Pig Iron have* . . . GREATER DENSITY · ADDED TOUGHESS · MORE STRENGTH · LESS SHRINKAGE · LESS SCRAP LOSS · GREATER UNIFORMITY · EASIER MACHINABILITY
. . . and you get higher quality finished products.

Superior Charcoal Pig Iron

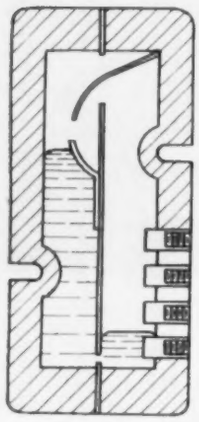
motor to make proper adjustment of the amount of motor weight used as belt tension, if the motor is running too warm.

After the drive has been in operation for a time the pulleys can be checked for belt slippage. Correctly installed, the slippage is never over one per cent. With this newly designed base the list of drives stocked has been increased to 100 horsepower, 1800 revolutions per minute.

◆

Time Delay Switch Embodies Unique Principle

Lincoln Electric Co., Cleveland, has developed a time delay switch which operates much like an hour glass since its principle is the slow movement of mercury from one chamber to another. When the switch is in the off position, it is tilted to the left and the mercury is in the lower chamber of the unit. Wire connections are tapped to the upper compartment. In the illustration the switch has been turned and the mercury has begun to flow into the upper cavity through a small opening. As this mercury rises it completes the circuit at the various taps. By changing one connection to the different taps a variation in time delay is secured in each switch.



Time delay switch beginning contact. Announced by Lincoln Electric Co.

When the switch is off, that is when it resumes its horizontal position, the mercury passes through a large opening, shown at the top center, into the lower chamber and the switch is ready to be used again as contact is broken immediately This type of switch can be built for accurate time delay of 2 to 20 seconds.

◆

Newly Developed Burnisher Is Semiautomatic

City Machine & Tool Works, East Third at June street, Dayton, O., has announced the development of the new model No. 1 semiautomatic Bolender burnisher shown in the accompanying illustration. This model has practically all the features of the larger units, such as burnishing pressure exerted horizontally to the center of the master burnishers, flat gear mounting which avoids all overhang, and a variable burnishing pressure.

Bolender burnisher developed by City Machine & Tool Works

The new unit, however, is smaller in size and does not have a fully automatic burnishing cycle, in that here the cycle is controlled by a three-button switch which permits the operator to burnish the work in one direction, reverse and stop it, so ending the operation. Although this particular model is shown equipped for air operation, the machine also may be furnished with a hydraulic unit. Both spur and helical gears up to 8½-inch outside diameter are handled.

◆

Rapid Operation Features Molding Machine

Osborn Mfg. Co., 5401 Hamilton avenue, Cleveland, recently added to its line a new jolt, squeeze, stripper molding machine which embodies many unusual features including fast operation, and adaptability to a wide range of flask sizes and types of patterns.

The post-type squeeze head support requires practically no floor space and is simple in design. The supporting column contains two widely spaced bronze bushings of large area which hold the squeeze head in alignment during the squeeze operation. An additional ball-type bearing carries the weight of the head when it is rotated into or out of the squeeze position. An adjustable stop permits head-swing to be adjusted to the shortest possible travel for any particular job.

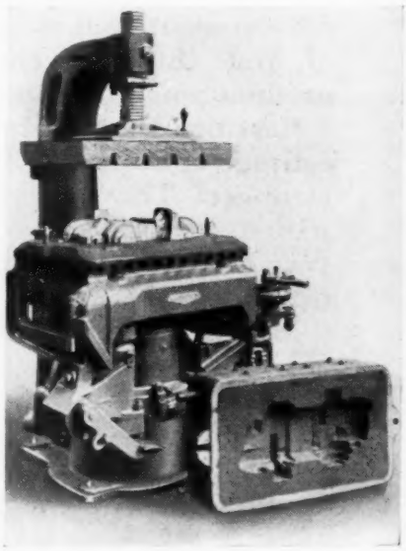
The large screw for vertical adjustment of the squeeze plate rests in a machine steel nut which retains its accurate fit. A positive, quick operating clamp simplifies vertical adjustment of the squeeze plate. The draw mechanism is adjustable from 3 to 6 inches in ½-inch steps. Two rigid arms securely fastened to the frame of the machine automatically fall into position under the lifting frame while the squeeze operation is being performed. The draw commences as soon as the lifting frame makes contact with these arms on the downstroke.

The vibrator is controlled automatically by the motion of the squeeze piston and the operating valve. As the valve is turned to the draw position, the vibrator starts to operate. As soon as the pattern is free of the sand, the downward movement of the table automatically causes the vibrator to cease operation.

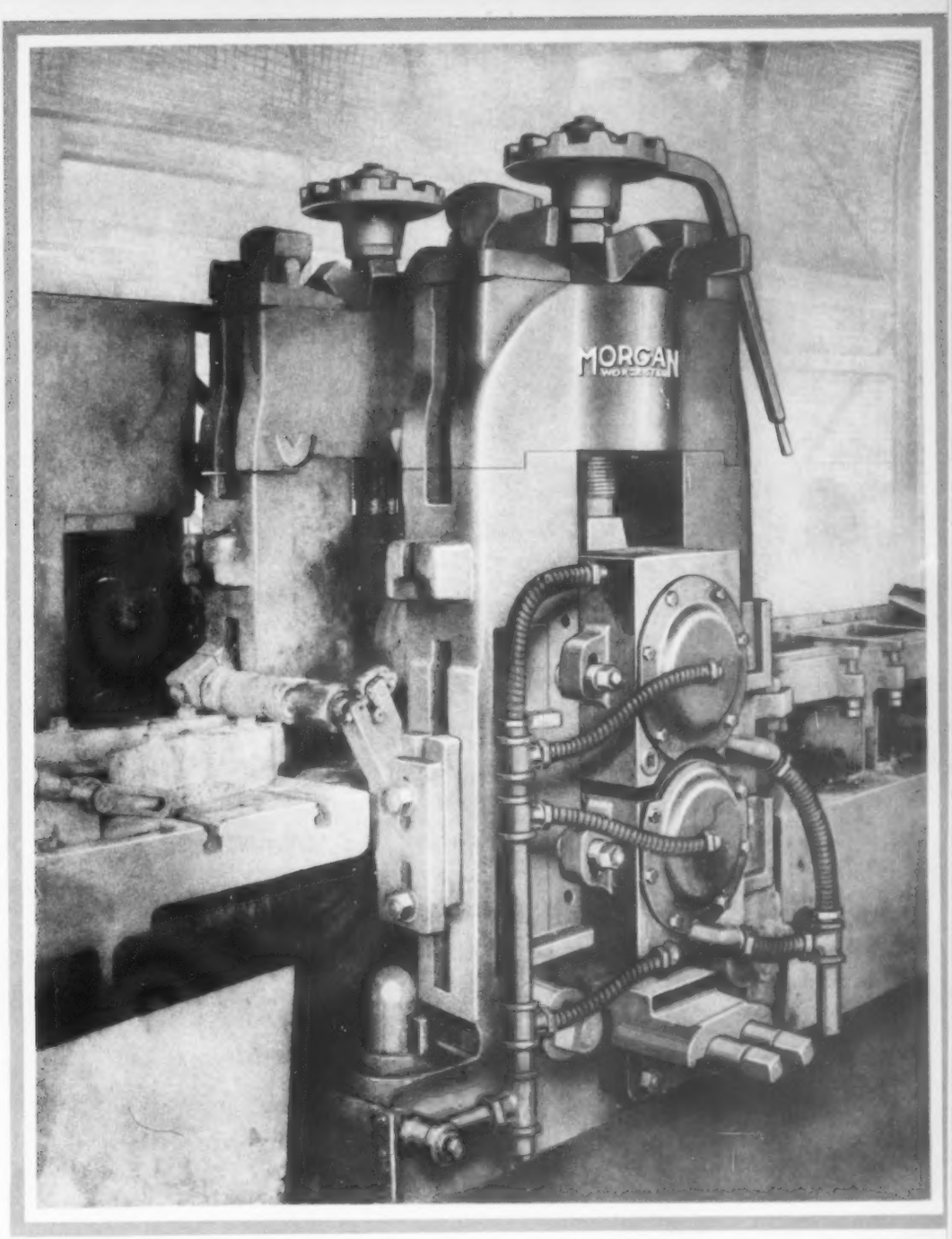
High Pressure Is Reduced

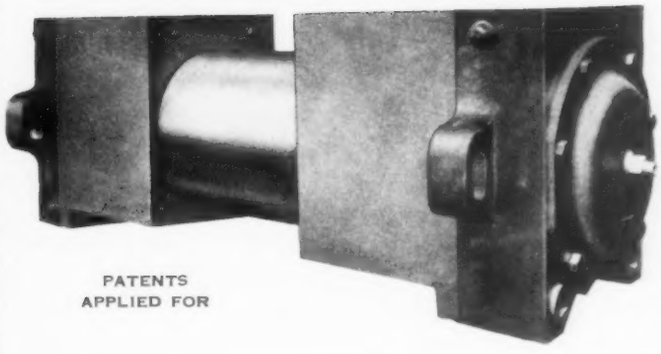
An automatic, quick release valve causes the draw to start without delay after the squeeze operation by reducing the high pressure beneath the squeeze piston to an amount just sufficient to support the pattern and equipment, and then slowly exhausting the remainder of the air at a speed that may be adjusted to suit the type of pattern.

Push type lubrication fittings are used throughout the machine. The maximum flask length is 30 inches and the maximum flask width 24 inches. The jolt capacity is 700 pounds.



Osborn molding machine utilizes a wide range of flasks





PATENTS
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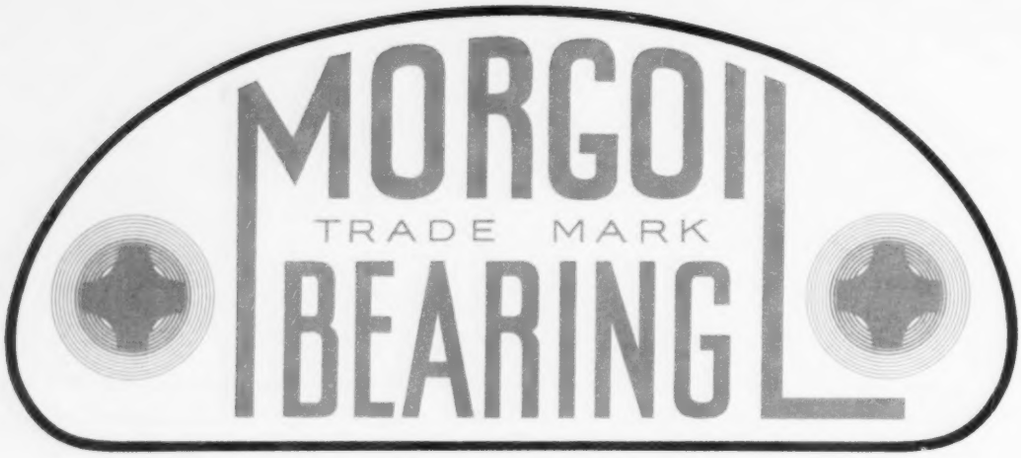
ANNOUNCING
"MORGOIL" ROLL NECK BEARINGS

SEE REVERSE SIDE



The amazing results of years of work in our experimental research department make possible this startling announcement to the steel industry—none more important since this company developed continuous rolling.

Morgoil Bearings are oil flooded and have no metal to metal contact under the heaviest loading.

Morgoil Bearings are sealed against the escape of oil and the entrance of water and scale.

Morgoil Bearings have a very low coefficient of friction and therefore the saving in power is extremely great.

Morgoil Bearings permit retention of the full strength of the roll necks.

Morgoil Bearings have a capacity beyond the strength of rolls and roll necks.

Morgoil Bearings permit quick roll changing as they are applied to and removed from rolls as complete units.

Morgoil Bearings can be readily applied to existing mills.

Morgoil Bearings do not wear and once the rolls are adjusted no further adjustment is required except for pass wear.

MORGAN CONSTRUCTION COMPANY
WORCESTER, MASSACHUSETTS

Steel Orders Are Expanding Slowly

Favorable Trends Especially Noticeable in Miscellaneous Manufacturing Lines — Structural Inquiry Broadens — Operating Rate Again Advances

FAVORABLE factors in steel are on the ascendency, with demand from practically all consuming lines broadening slowly but steadily. The steel industry is not yet experiencing the volume of business expected at this time from railroads, automobiles, building construction or pipe line projects, yet improvement in sentiment and actual orders is becoming more perceptible. It is due largely to the gradual accumulation of miscellaneous requirements, plus a moderate lift from the automotive industry, that steelworks operations have maintained a rising trend throughout January.

An increase of 1 point to 28 per cent is scheduled in the steelworks operating rate this week. In no district is there likely to be a loss. Cleveland will be up 3 points to 41 per cent, the highest rate in two months; Chicago up 2 points to 24½ per cent; Buffalo, after dipping to 13 per cent last week, is slated for 22 per cent; Pittsburgh will hold at 25; eastern Pennsylvania at 17 to 18; Youngstown at 34; and Birmingham at 60 per cent.

Pressure for economy in public work is delaying action on numerous important construction jobs, notably 200,000 tons in New York; nevertheless, structural shape awards for the week at 16,000 tons compare favorably with those in the preceding week, while new inquiry has expanded to 40,000 tons, including 10,000 tons for a postoffice in Los Angeles, 10,000 tons for the Union Terminal in that city, and 12,000 tons at Chicago. Reinforcing bar awards for the week total 5000 tons.

Negotiations for railroad wage reductions encourage steelmakers to look forward to larger demands from the carriers by spring. Due to postponement of orders, however, all rail mills in the Chicago district are down for the first time in more than two years. Practically the only new rail business of note is the placing of 4000 tons for the Delaware, Lackawanna & Western. Railroad equipment and supply manufacturers appear convinced that the tide has turned and are preparing their plants for increased production shortly.

Preliminary estimates are being completed on several new pipe line projects which are expected to mature in substantial steel tonnages. United Gas Improvement Co., Philadelphia, has placed blanket contracts with several mills for this year's requirements. At Pittsburgh demand for all tubular products has picked up. Cast iron and wrought iron pipe is more active.

Automobile production is increasing, but still is extremely slow. Offsetting this to some extent is the accelerated buying by diverse manufacturing lines. Electrical refrigerator companies are increasing orders for sheets, anticipating another good year. Shipments of wire products in the Middle West are 10 to 15 per cent ahead of December, specifications for nuts, bolts and rivets have expanded. In raw materials, also, there are favorable indications. Pig iron sales at Cleveland and Pittsburgh have broadened; trading in scrap is heavier.

Efforts to stabilize heavy finished steel prices have made some progress, at least one important interest claiming to have withdrawn 1.50c, Pittsburgh, on plates, shapes and bars. In sheets and strip, especially for automotive buyers, price concessions still are numerous and drastic. An easier situation has developed in tin plate. Due to a reduction of $2 a ton in hot-annealed sheets, STEEL's finished steel composite is down 20 cents to $47.42, and the iron and steel composite is off 8 cents to $30. The steelworks scrap composite is reduced 4 cents to $7.96, reflecting the lowest scrap prices in more than 20 years.

Composite Market Averages

	Jan. 23	Jan. 16	One Month Ago (Dec., 1931)	Three Months Ago (Oct., 1931)	One Year Ago (Jan., 1931)	Ten Years Ago (Jan., 1922)
Iron and Steel Composite	$30.00	$30.08	$30.32	$30.74	$31.71	$33.35
Finished Steel Composite	47.42	47.62	47.74	48.22	49.30	50.54
Steelworks Scrap Composite	7.96	8.00	8.16	8.50	10.49	11.31

Iron and Steel Composite:—Pig iron, billets, slabs, sheet bars, wire rods, pipe, tin plate, nails, sheets, plates, shapes, bars. Finished Steel Composite:—Plates, shapes, bars, hot strip, nails, tin plate, pipe. Steelworks Scrap Composite:—Melting steel, compressed sheets.

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for Current Week, Last Month, Three Months and One Year Ago

	Jan. 23, 1932	Dec., 1931	Oct., 1931	Jan., 1931
PIG IRON				
Bessemer, del. Pittsburgh	$17.26	17.51	18.16	18.76
Basic, valley	15.00	15.00	16.50	17.00
Basic, eastern del. eastern Pa.	16.00	16.00	16.25	17.25
No. 2 foundry, del. Pittsburgh	17.26	17.51	18.16	18.26
No. 2 foundry, Chicago	16.50	16.60	17.20	17.50
*Southern No. 2, Birmingham	12.00	12.00	12.00	14.00
**No. 2X, Virginia furnace	18.00	18.00	18.00	18.25
**No. 2X, Eastern del. Phila.	15.76	16.01	17.26	18.26
Malleable, valley	16.00	16.10	16.90	17.50
Malleable, Chicago	16.50	16.60	17.10	17.50
Lake Superior, charcoal, del. Chi.	23.04	20.79	25.04	27.04
Gray forge, del. Pittsburgh	16.63	16.88	17.53	17.63
Ferromanganese, del. Pittsburgh	79.85½	84.79	89.79	89.79

*1.75-2.25 silicon. For local delivery. Northern shipments based on $10 to $11, Birmingham. **2.25-2.75 silicon.

Delivered pig iron prices subject to 10 per cent freight surcharge, maximum 13.44c per gross ton, beginning Jan. 4, 1932.

COKE				
Connellsville furnace, ovens	2.25	2.30	2.40	2.50
Connellsville foundry, ovens	3.25	3.25	3.25	3.30
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngs.	26.00	28.00	29.00	30.00
Sheet bars, open-hearth, Pitts.	27.00	28.00	29.00	30.00
Billets, open-hearth, Pittsburgh	27.00	29.00	29.00	30.00
Wire rods, Pittsburgh	37.00	35.00	35.00	35.00

	Jan. 23, 1932	Dec., 1931	Oct., 1931	Jan., 1931
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.60	1.60	1.60	1.65
Steel bars, Chicago	1.70	1.60	1.70	1.70
Steel bars, Philadelphia	1.81	1.89	1.89	1.94
Iron bars, Chicago	1.60	1.60	1.70	1.70
Shapes, Pittsburgh	1.60	1.50	1.60	1.60
Shapes, Philadelphia	1.65	1.69½	1.76	1.81
Shapes, Chicago	1.70	1.60	1.70	1.70
Tank plates, Pittsburgh	1.60	1.50	1.60	1.65
Tank plates, Philadelphia	1.69½	1.73½	1.80½	1.81¼
Tank plates, Chicago	1.70	1.60	1.70	1.70
Sheets, No. 10 blue anneal., Pitts.	1.75	1.85	1.85	2.05
†Sheets, No. 24, hot. ann., Pitts.	2.15	2.40	2.40	2.35
Sheets, No. 24, galvan., Pitts.	2.80	2.90	2.90	2.90
Sheets, No. 10 blue anneal., Chi.	2.00	2.00	2.00	2.50
†Sheets, No. 24, hot, ann., Chi.	2.45	2.55	2.55	2.20
Sheets, No. 24 galvan., Chi.	2.95	3.05	3.05	3.05
Plain wire, Pittsburgh	2.20	2.20	2.20	2.20
Wire nails, Pittsburgh	1.95	1.95	1.90	1.90
Tin plate, per base box, Pitts.	4.75	4.75	4.75	5.00

†Comparisons are with old classification No. 24 black sheets.

SCRAP				
Heavy melting steel, Pitts.	$10.25	10.25	10.45	13.00
Heavy melting steel, eastern Pa.	7.50	7.65	8.20	10.50
Heavy melting steel, Chicago	7.00	7.50	7.75	10.00
No. 1 wrought, eastern Pa.	9.25	9.50	9.50	13.25
No. 1 wrought, Chicago	7.25	7.40	8.00	9.50
Rails for rolling, Chicago	10.00	10.00	10.50	13.00

Sheets

Automotive Orders Expanding Slowly — Refrigerator Makers Preparing for Active Year

SHEET PRICES, PAGE 43

Pittsburgh—Sheet orders are spotty and the moderate improvement in demand noted recently has failed to continue. Automotive buying which accounted for a considerable portion of the recent spurt in orders is unchanged except in requirements of a few interests. Specifications from the Ford Motor Co. are light and unimproved. Farm implement buyers show no change in their demand but electric refrigerator makers are preparing for another active year and fair volume of sheets is expected to be required for this industry. Price stability has failed to materialize to any great extent, with some concessions still noted from recent levels. The general market is 2.15c to 2.35c for hot-rolled annealed sheets, 2.80c to 2.90c for galvanized, 1.75c to 1.85c for blue annealed and 2.90c for autobody. Tin mill black sheets are slightly easier.

Boston—Connecticut closes bids Feb. 1 on approximately 175 tons of No. 24 gage, pickled and annealed open-hearth steel sheets for embossed automobile markers, material not to be resquared. Quotations should be f.o.b., Connecticut reformatory, George C. Erskine, superintendent, Cheshire, Conn. Required are 14,000 sheets, 30½ x 122½ inches. Shipments are to be in carload lots over a period of four months and the buyer will take 10 per cent in excess.

New York — Apart from a few slight variations, sheet prices are unchanged, with sentiment stronger. No. 24 hot-rolled annealed appears to be 2.25c, Pittsburgh, with the 2.15c figure applying only in exceptional instances. No. 20 heavy cold-rolled now is generally 2.75c, Pittsburgh, against 2.85c, recently. The freight rate from Pittsburgh to New York is 35 cents. Buying is light.

Navy has bids on about 500 tons of sheets for eastern and western yards. Bids were taken on a delivered and f.o.b. basis, Wheeling Steel Corp. being low on most of it.

Philadelphia—Competition is keen, with minimum prices of No. 10 hot-rolled and No. 10 blue annealed off $1 a ton. The former now are quoted 1.86c to 2.01c; and the latter, 2.01c to 2.16c, delivered Philadelphia. While 2.15c, Pittsburgh, is noted on No. 24 hot-rolled annealed this is exceptional, with 2.25c the usual figure. Galvanized sheets are moving at 2.80c, Pittsburgh.

Youngstown, O.—A slight expansion is noted in volume of new business placed with valley mills and in specifications from several makers of automobile parts and bodies. Miscellaneous consumers appear to be supplying most of the business. The new Ford model may be held in the background until April or even later. Sheet mill operations show many irregularities.

Cleveland—Fisher Body Co. this week may purchase sheets and strips for 1932 Chevrolet bodies. Furniture fabricators east of here point expectantly to large tonnages for the Radio City development at New York which still are pending. These include metal partitions, trim, furniture, etc. The barrel trade is dull.

Chicago—The addition to its new continuous 76-inch sheet-strip-plate mill will be completed soon by the leading independent sheetmaker. Miscellaneous sheet orders have improved. Mill prices for No. 24 hot-rolled annealed are reported steady at 2.40c to 2.50c, despite weakness in the East.

St. Louis—New orders and specifications have increased considerably, including practically all grades. The Granite City Steel Co. reports new business thus far in January double that for the corresponding period in December. Prices are steady.

Current Finished Steel Prices

Delivered prices subject to freight surcharge corrected to nearest ½c. Prices in cents per pound unless otherwise stated

Steel Sheets

HOT ROLLED No. 10

Pittsburgh, base	1.60c to 1.70c
Gary, Ind. Harbor, base	1.70c to 1.80c
Chicago, del.	1.75c to 1.85c
New York, del.	1.95c to 2.00c
Birmingham, base	1.75c to 1.85c
Philadelphia, del.	1.86c to 2.01c

BLUE ANNEALED NO. 9-10

Pittsburgh, base	1.75c to 1.85c
Chicago, district mills	1.95c
Chicago, delivered	2.00c
Philadelphia, del.	2.01c to 2.16c
New York, del.	2.10c
St. Louis, delivered	2.12½c
Birmingham	2.00c
San Francisco c.i.f.	2.35c

HOT ROLLED ANNEALED NO. 24

Pittsburgh, base	2.15c to 2.35c
Gary, Ind. Harbor, base	2.40c to 2.50c
Chicago, del.	2.45c to 2.55c
New York, del.	2.60c
Philadelphia, del.	2.56c
Birmingham, base	2.45c to 2.55c
St. Louis, del.	2.62½c
San Francisco, c.i.f.	2.90c

GALVANIZED NO. 24

Pittsburgh, base	2.80c to 2.90c
Gary, Ind. Harbor, base	2.90c to 3.00c
Chicago, del.	2.95c to 3.05c
Philadelphia, base	3.11c
Birmingham, base	3.05c
St. Louis, del.	3.17½c
San Francisco, c.i.f.	3.40c

AUTOMOBILE NO. 20

Pittsburgh, base	2.90c to 3.00c

FURNITURE

Pitts., No. 10 heavy	2.65c
Pitts., No. 20 light	3.25c

TIN MILL BLACK NO. 28

Pittsburgh, base	2.50c to 2.55c
Gary base	2.65c to 2.75c
St. Louis, del.	2.87½c

HEAVY COLD ROLLED NO. 10

Pittsburgh base	2.20c to 2.30c
Gary, Ind. Harbor, base	2.35c to 2.45c
Chicago, del.	2.40c to 2.50c
Philadelphia, del.	2.56c to 2.66c
New York, del.	2.60c
St. Louis, del.	2.62½c

COLD ROLLED NO. 20

Pittsburgh, base	2.70c to 2.90c
Gary, Ind. Harbor, base	2.95c to 3.05c
Chicago, del.	3.00c to 3.10c
Philadelphia, del.	3.16c
New York, del.	3.10c
St. Louis, del.	3.22½c

Tin and Terne Plate

Prices per 100-pound box, Pittsburgh

Tin plate, coke base	$4.75

Gary, Ind., base 10 cents higher

Long ternes, 24, unassorted, 2.90c to 3.00c

Wire Products

(Prices apply on straight carloads. Mixed and joint carloads take 10 cents higher price; pool carloads 25-cent advance; less carloads 40-cent advance.)

F.o.b. mills, 100 lb. keg

Standard wire nails	$1.95
Cement coated nails	1.95
Galvanized nails	3.95

(Per pound)

Polished staples	2.50c
Galvanized staples	2.75c
Barbed wire, gal.	2.60c
Annealed fence wire	2.35c
Galvanized wire	2.80c
Woven wire fencing, (9-11 ga.)	$55.00
(12½ ga. and lighter)	$60.00

(To Manufacturing Trade)

Plain wire, 6-9 gage	2.20c
Spring wire	3.20c

Joliet, DeKalb, Waukegan, Ill., Anderson, Ind. Chicago, $1 over Pitts-Cleve.; Duluth and Worcester, Mass., $2 higher; Fairfield, Ala., $3 higher.

Steel Plates

Pittsburgh, base	1.50c to 1.60c
Philadelphia, base	1.69½c
New York, delivered	1.80c
Boston, delivered	1.92c to 2.02c
Chicago, base	1.70c
Cleveland, del.	1.80½c
Lackawanna, N. Y., base	1.60c to 1.70c
Birmingham, Ala., base	1.75c
Coatesville, Pa., base	1.60c
Pacific Coast, c.i.f.	1.80c to 1.85c
St. Louis, del.	1.97½c

Structural Shapes

Pittsburgh, base	1.50c to 1.60c
Philadelphia, del.	1.65c
New York, del.	1.77c to 1.87c
Boston, del.	1.90½c to 2.00½c
Chicago, base	1.70c
Cleveland, del.	1.80½c
Lackawanna, N. Y., base	1.60c to 1.70c
Birmingham, Ala., base	1.75c
Pacific Coast, c.i.f.	2.05c
Do., wide flange	2.15c

Bars

SOFT STEEL

Pittsburgh, base	1.50c to 1.60c
Chicago, base	1.70c
Birmingham, Ala., base	1.70c to 1.75c
Lackawanna, N. Y., base	1.60c to 1.70c
Pacific Coast, c.i.f.	2.05c
Cleveland, base, local del.	1.55c
Cleveland, base, out. del.	1.55c
Philadelphia, del.	1.81c
New York, del.	1.85c to 1.95c
Boston, del.	1.97c to 2.02c
Pittsburgh, cold finish	1.65c to 1.75c
Pittsburgh, forg. qual.	1.75c to 1.85c

RAIL STEEL

Chicago Heights	1.50c to 1.60c
Eastern mills	1.30c
Pittsburgh	1.30c to 1.35c

IRON

Chicago, base	1.60c to 1.65c
New York, delivered	1.85c to 1.95c
Philadelphia, delivered	1.86c to 1.96c
Pittsburgh, refined	2.70c to 4.20c

REINFORCING

Pitts., billet cut lengths	1.75c
Stock lengths, mill	1.60c
Chi., billet	1.75c to 2.00c
Chi., rail steel	1.55c to 1.80c
Chi., rail steel, bridges and culvert	1.40c to 1.50c
Philadelphia, cut lengths	2.06c
Cleveland, cut lengths	1.75c

Cold Finished Bars, Shafting

Base Pittsburgh, Chicago, Buffalo and Cleveland	2.00c
Shafting, turned and ground, Pittsburgh, Cumberland, Md.	2.35c to 2.80c

Corrosion, Heat Resist. Alloys

Base, Pittsburgh

18 per cent chrome, 8 per cent nickel

Sheets, 35c; plates, 31c; bars, 28c.

	A	B	C	D
Bars	19c	20.5c	23c	28c
Plates	21c	22.5c	25c	30c
Sheets	23c	24.5c	27c	32c
Hot Strip	19c	20.5c	23c	28c
Cold strip	25c	26.5c	29c	34c

Carbon 0.12 and under; no nickel. A has chrome 15% and under. B over 15/18% inc., C over 18/23% inc., D over 23/30%.

Wrought Washers

Carloads, Pitts. dist.	$6.50 to 6.75 off
Carloads, Chicago dist.	7.00 to 7.50 off

Alloy Steel

Hot Rolled—F.o.b. Mills

Alloy Quality Bars, 2.65c, mill

S.A.E.	Alloy Diff.		
2000	0.25	4600 .20 to .30 Mo. 1.25-1.75 Ni.	1.05
2100	0.55	5100 .80 - 1.10 Cr.	0.45
2300	1.50	51.00 Cr. spring	0.20
2500	2.25	6100 bars	1.20
3100	0.55	6100 Spring	0.95
3200	1.35	Cr., Ni., Van.	1.50
3300	3.80	Carbon Van.	0.95
3400	3.20	9250 (flats)	0.25
4100 .15 to .25 Mo.	0.50	9250 (rds.,sq.)	0.50

Strip, Hoops, Bands

Hot strip, to 6-in., Pitts.	1.50c to 1.60c
Do, 6 1/16 to 24-in., Pitts.	1.40c to 1.50c
Hot strip to 6 in. Chi.	1.65c to 1.70c
Do, 6 1/16 to 24 in.	1.55c to 1.60c
Cooperage hoop, Pitts.	1.60c to 1.70c
Do., Chicago	1.70c to 1.80c
Cold-roll. strip, Pitts., Cleve.	1.95c to 2.00c
Worcester, 3 tons, over	2.15c

Rails, Track Material

Standard rails, mill	$43.00
Relay rails, Pitts., 20 to 45 lbs.	$22.00 to $26.00
50 to 75	20.00 to 24.00
80 to 100	24.00 to 27.00
Light rails, 25-45, mills	$34.00
Light rails, Chicago	$36.00
Angle bars, mills	2.75c
Spikes, railroad, mills	2.60c
Spikes, railroad, 7/16-in. and smaller, Pitts.	2.60c
Spikes, boat, barge, Pitts.	2.90c
Track bolts, Chicago	3.50c
Do, standard, jobbers	73 off list
Track bolts, Chicago	3.50c
Tie plate, mills	$37.00

Bolts and Nuts

Pittsburgh, Cleveland, Birmingham, Chi. Discounts to legitimate jobbing or large consuming trade for full-case lots apply to May 10, 1930, lists.

CARRIAGE BOLTS

All sizes, cut thread.....73, 10 and 10 off

Rolled thread ⅜ x 6 and smaller take 10 per cent lower list.

Eagle list .....73, 10 and 10 off

MACHINE BOLTS

All sizes, cut thread, lag screws, plow bolts, Nos. 1-2-3-7 heads, tap bolts, blank bolts, stud bolts without nuts .....73, 10 and 10 off

Tire bolts .....60, 10 and 10 off

Stove bolts, 80-25-10 off in pkgs.; 80 25-10-2½ off in bulk.

Rolled thread machine bolts, ⅜ x 6 and smaller take 10 per cent lower list.

NUTS

Semifinished .....73, 10 and 10 off

HEXAGON CAP SCREWS

Milled .....80-10-10-5 off

Upset 1 in. diam. and smaller....85-10 off

SQUARE HEAD SET SCREWS

Milled .....80-5 off

Upset, 1 in. and smaller.....80-10-5 off

Upset, larger than 1 in.....80-5 off

Cut Nails, Chain, Piling

Cut nails, c.l. Pittsburgh	2.50c
Do. less carloads, 5 kegs or over	2.75c;
less than 5 kegs, 2.90c.	
Chain, BB, BBB, 9/16-1½ in.	33 1/3 off
Sheet piling, Pitts.	1.90c

Rivets

Struc., c.l., Pitts.-Cleve.	2.25c
Struc., c.l., Chicago	2.35c
7/16-in. smaller, Pitts.	70, 10 and 5 off
Chicago, Cleve.	70, 10 and 5 off

Bars

Broadened Demand and Short Term Contracts Sustain Production—Future Covering Is Slow

BAR PRICES, PAGE 43

Chicago—Orders of the large western automotive partsmakers are being maintained, but their unfilled orders are dwindling. Uncertainty exixts as to the next month's automotive business. An accumulation of automotive and miscellaneous orders keeps bar mills at close to 30 per cent for the third successive week. Short-term contract sales, as in the last two weeks, show gains over December. Specifications are on a parity. Few buyers commit themselves for more than 15 days ahead. The bar base continues at 1.70c, mills. The implement outlook is not encouraging. One farm tractor maker, who has been operating at about one-sixth capacity at all his plants since early December, now has a stock of 15,000 tractors and may go down in 30 to 45 days.

New York—Commercial steel bars continue generally at 1.50c, Pittsburgh, with some small lots up to 1.60c. Improved sentiment has not resulted in increase in tonnage. Common iron bars are quiet at 1.60c, Pittsburgh.

Philadelphia—Steel bars are generally 1.50c, Pittsburgh, with $1 higher on occasional small lots. Better interest is shown but little improvement has been made in bookings. Iron bars are quoted at 1.55c to 1.65c, making the delivered price 1.86c to 1.96c, Philadelphia.

Pittsburgh—Steel bar demand generally is steady, although some automotive interests are taking larger lots. Buying has broadened moderately, and inquiry also is more diversified. The market continues at 1.50c to 1.60c with the higher figure generally quoted to average buyers.

Youngstown, O.—Wider variety of steel bars is being sought by consumers who because of inventory had allowed stocks to run down. This includes some warehouses in adjoining cities. Common bars are in greatest demand from miscellaneous sources. There also is some rush buying of alloy bars by auto partsmakers but not in the volume expected some weeks ago. Common steel bars range from 1.50c to 1.60c, Pittsburgh.

Cleveland—On the small merchant steel bar specifications last week 1.55c, Cleveland base, was applied, both for local and outside delivery. Small lots, however, are commanding $2 a ton above this base. Inquiry is lacking.

Tin Plate Lacks Usual Seasonal Improvement

Tin Plate Prices, Page 43

Pittsburgh—Tin plate consumers are slow to increase their specifications and mill operations lack improvement at 40 per cent. Precedent calls for seasonal improvement in demand over the next 30 days but uncertainty regarding credit and crop conditions is causing canmakers to proceed slowly with tin plate orders. The official market continues $4.75, Pittsburgh, per base box.

Youngstown, O.—Sufficient orders for tin plate have been placed with mills to keep them operating about 50 per cent. In normal years tin mill activity at this period is about 100 per cent. However, with the salmon canning season just ahead, mill managers believe they will have fairly satisfactory spring rolling schedules.

Cold-Finished Shipment Improvement Is Slight

Cold Finished Prices, Page 43

Pittsburgh—Light demand from the automotive industry continues to restrict activity in cold-finished bars. Specifications are spotty and recent improvement in shipments has been slight. Demand from other consumers has shown little change so far this month. The market continues 2.00c, Pittsburgh.

Cleveland—Little immediate prospect is seen for improvement in general specifying of cold-finished steel bars. Orders at present on mill books unless augmented will result in continued unsatisfactory operations. The 2.00c Cleveland base is well observed.

Plates

Fabricators Have Little Work And Buy Lightly—Prices Are Steady but Lack Test

PLATE PRICES, PAGE 43

Philadelphia—Plates are moving generally at 1.60c, Coatesville, Pa., with some small pickup lots placed at higher prices. Among pending work is 700 tons of plates for a gas holder for the navy at Sunnyvale, Calif., bids to be opened at Washington Jan. 27. From 300 to 500 tons of steel in other forms will be required. Reconditioning four vessels for the American Scantic Co., on which the New York Shipbuilding Co. is low, will call for 400 to 500 tons of plates. Stone & Webster have placed about 270 tons for a coal breaker for St. Nicholas, Pa., the seller not being named.

Boston—Demand for plates is dull. Prices are steady, however, at 1.90½c on most business. Most of the steady plate consumers are on reduced schedules, including the shops at Lynn. Shipbuilding is also inactive. Several large tank jobs for oil storage plants, have been tentatively planned, but will not go ahead immediately.

Pittsburgh—Plate prices continue 1.50c to 1.60c, Pittsburgh, with current business light and providing little test. Inquiry for fabricated work lacks improvement although several barge orders are looked for shortly.

Cleveland—A slightly stronger price situation is manifest in the plate market with the withdrawal of some quotations made recently in several specific instances. A tendency toward improvement in orders is noted. The market is still quotable at 1.50c to 1.60c. S. A. Healy Inc., Detroit, general contractor on the Rock Island, Ill., dam, is expected to buy 1000 to 1200 tons of plates, but only a few local shops are figuring. Ten carloads of steel, the initial shipment, were received last week at the Lorain, O., yards of American Shipbuilding Co. for its work in conversion of three ore-carriers to self-unloaders. The steel was largely plates and shapes.

Chicago—Miscellaneous plate orders have increased. A number of industrial and municipal tank orders of 200 to 1000 tons are pending. The 1.70c base for plates is not tested by competitive bidding from outside mills.

Contracts Placed

660 tons, piling, government flood prevention work, Memphis, Tenn., to

Jones & Laughlin Steel Corp., Pittsburgh.
270 tons, for coal breaker at St. Nicholas, Pa., with unknown supplier, through Stone & Webster, New York.
200 tons, overflow pipe project, West Seattle, Wash., 24 and 36-inch, 5/16-inch gage, to Puget Sound Machinery Depot, Seattle.
100 tons, for 200,000-gallon tank and tower, Hooker Electrochemical Co., Wilmington, Calif., to Chicago Bridge & Iron Works, Chicago.

Contracts Pending

850 tons, 18 and 20-inch welded steel pipe, Signal Hill, Calif. Bids Jan. 25. Alternate bids on cast iron and reinforced concrete pipe.
700 tons, gas holder for navy at Sunnyvale, Calif.; bids opened at Washington Jan. 27. Additional 400 to 500 tons of steel to accompany.
500 tons, inverted siphon for Los Angeles. Plans being prepared.
450 tons, eastern and western yards, navy department; bids in.
400 to 500 tons, reconditioning four vessels American Scantic Co. New York Shipbuilding Co., Camden, N. J., low.
280 tons, plates and shapes, buoys, sinkers and balls, lighthouse bureau, Staten Island, N. Y.; bids Feb 9.
150 tons, tank and tower, Benton Field, Alameda, Calif. Huber Mfg. Co. low bidder.

Semifinished Steel Demand More Active

Semifinished Prices, Page 50

Pittsburgh—Semifinished steel orders and shipments are slightly more active as a result of better operations of some finishing mills. Demand still is confined to small lots for early requirements and forward buying continues quiet. Prices generally continue $27 to $28 for rerolling billets and slabs and $27 for sheet bars. Forging billets continue $34 to $35 with wire rods $37.

Youngstown, O.—Buyers of billets and sheet bars show no inclination to place contracts for the quarter. However, the slight gain in activity at valley sheet and strip mills is bringing out small rush orders. Billets and slabs are $27, Youngstown, Pittsburgh and Cleveland; sheet bars are $26, Youngstown and Cleveland, and $27, Pittsburgh.

Chicago—Semifinished material, including billets and sheet bars, are being stocked, and also cold ingots are going on the banks in expectation that finished steel demand later may exceed low open-hearth production. Billets and sheet bars are steady at $29.

Philadelphia—Semifinished steel prices are slightly easier. Rerollers are $32.75, Philadelphia, and forging quality $38.75 to $39.75.

Acme Lamp & Shade Mfg. Co., New York, has changed its name to Acme Lamp & Fixture Works.

Railroads

Deferrment General in Steel Buying of Railroads—Bethlehem to Roll 4000 Tons Rails

TRACK MATERIAL PRICES, PAGE 43

Chicago—Chicago district rail mills are entirely down for the first time in over a year, but they may resume this week. The 1930-31 contract carryover of rails may provide unexpected releases. Railroad supply manufacturers are getting their equipment in order for the expected turn in railroad buying before summer. Favorable outcome of the wage question is expected to provide funds for some equipment purchases in two months.

Buffalo—Bethlehem Steel Co. plans to begin operation of its Lackawanna rail mill about Feb. 15. The first order, at least the only one now on hand, is for 4000 tons of 130-pound rails for the Delaware, Lackawanna & Western railroad. It is expected that several other contracts will have been awarded before the production of the order for the Lackawanna road is started.

Pittsburgh—Inquiries for rails and fastenings from several roads still are awaited. Freight car inquiry continues light and specifications for miscellaneous material show little change.

Cleveland—Inquiry for tie plates, spikes and rail anchors is expected soon from the Erie railroad, following its recent purchase of 33,200 tons of rails. Mills sharing in the rail business have received their definite allocation, and in one instance rolling is reported to have begun.

Car Orders Placed

Cudahy Packing Co., 25 underframes to Pullman Car & Mfg. Corp., Chicago.
North American Car Corp., nine tank cars to American Car & Foundry Co., New York.

Rail Orders Placed

Delaware, Lackawanna & Western, 4000 tons 130-pound rails, to Bethlehem Steel Co., Bethlehem, Pa.

Car Orders Pending

Alaska railroad, Seattle; 10 hopper-bottom, steel underframe cars, to be readvertised. Previous bids rejected.
Chicago, Burlington & Quincy railroad, 50 mine car bodies.
Navy department, for Norfolk, Va., Portsmouth, N. H., and Philadelphia, 10 new flat cars; Koppel Industrial Car & Equipment Co., Koppel, Pa., low bidder.
Western Fruit Express, 300 underframes; expected to be closed this week.

Wire Specifications in Slightly Better Volume

Wire Prices, Page 43

Chicago—Further moderate gains are noted in wire products specifications. January shipments will be 10 to 15 per cent over December, even with the spurt in specifications late last month ahead of the freight surcharge. Expiration of contracts on Jan. 15 had resulted in a stimulus to shipping orders. Quotations of $1.95 on carload lots of wire nails, and 2.25c, Chicago or western mills, for plain wire, are nominal in view of the light contracting.

Worcester, Mass.—Wire production does not show the gain expected at the first of the year. Present output is at the rate of the last four months of 1931, the poorest period of that year.

New York—Nails are unchanged and untested at $1.95, Pittsburgh. Wire is 2.20c, Pittsburgh. While the tone is firm, sellers expect little improvement before late February.

Pittsburgh—Specifications for wire products reflect the anticipatory buying done prior to the introduction of higher prices and freight rates. Manufacturers' wire, which is unchanged at 2.20c from the fourth quarter level, generally is quiet but in slightly better demand from the automotive industry. The new price schedule is steady and meets general approval of jobbers. Wire nails are $1.95 in carload lots. Wire rods are $37, with the market receiving little test.

Cleveland—Test has been made of the $1.95 quotation on nails in sales recently of a few straight carlots at this figure. Plain and spring wire is in quiet demand, and unchanged in price.

Proposes Antitrust Truce

Washington—A 2-year truce in enforcement of antitrust laws has been suggested to the President by Charles F. Abbott, executive director, American Institute of Steel Construction Inc., New York, as an emergency reconstruction measure.

Structural Shapes

Gain in Chicago Inquiry, 12,000 Tons Now Up—Some Jobs Delayed at New York, Though Brooklyn, N. Y., Hospital and Schools Are Bought, 3060 Tons

STRUCTURAL SHAPE PRICES, PAGE 43

Chicago — Mill operations are made irregular by sporadic releases covering public work. Average last week was 25 per cent. Inquiries, at 12,000 tons, are higher, including 4100 tons for the readvertising of the Manheim road bridge, Chicago. Lessees of industrial space for the 1933 Century of Progress will start building this year on a fairly large scale. General Motors Corp. and Sears, Roebuck & Co. are among concerns planning larger structures. Nickel Plate railroad has a program of street subways, also the 103rd street viaduct. Plain structural material is based on 1.70c, Chicago.

Illinois road commission has been appointed to spend half a billion of motorists' tax money for road building in the next ten years.

Boston—Structural lettings are light, a few tonnages under 200 tons being confined to public work. Contractor was expected to close this week on about 1500 tons for the department of public works building. The Christian Science Publishing society plant will take more than 2000 tons of structurals. Small orders have been placed for steel at Waltham, Mass., Fall River, Mass., and the veterans' hospital at Rutland, Mass.

New York—Uncertainty from delay and temporary postponement of public works projects clouds the outlook for structural steel. The bulk of lettings continues to be for this type of construction. Unsatisfactory and mixed conditions in the building industry have resulted in five or six abandoned state contracts. More than 1000 tons have been placed for public schools. The Hudson river state hospital steel went to a Buffalo fabricator.

Philadelphia — Buying continues to be restricted with structurals 1.60c, eastern mill. Inquiry includes an increasing volume of small tonnages.

Curtailment of government state and local expenditures for public works is reported delaying structural buying.

Buffalo—A Buffalo fabricator has booked 425 tons of shapes for an Attica, N. Y., prison addition. There is now considerable speculation regarding the placing of the 1700-ton Michigan avenue bridge. It had been stated by city officials that the Wisconsin Bridge & Iron Works, North Milwaukee, Wis., would buy the steel locally.

Pittsburgh—Public work still predominates in structural awards and inquiry. Private work is slow to appear. Plain shapes remain 1.50c to 1.60c, Pittsburgh.

Cleveland — Inquiry here for shapes for building and manufacturing operations is not improved. State and federal work continue to supply the bulk of business. Eleven bridges for the Ohio highway department went in for contractor bids Jan. 22, totaling 643 tons. The largest was the 275-ton Lake county, O., bridge. Contractors in the state awards of Dec. 29 have bought most of their shape requirements. Plain material continues 1.50c to 1.60c, Pittsburgh base.

Contracts Placed

2060 tons, buildings, Brooklyn State hospital, Brooklyn, N. Y., to McClintic-Marshall Corp., Bethlehem, Pa.; Wilaka Construction Co., New York, contractor.

1000 tons, public school 95, Bronx (New York), to Harris Structural Steel Co., New York.

1000 tons, postoffice, Topeka, Kans., to James A. Barnes, Logansport, Ind.

750 tons, Universal Broadcasting Co. building, Chestnut street, Philadelphia, to Lehigh Structural Steel Co., Allentown, Pa.

600 tons, highway bridge, Boynton, Mo., to Stupp Bros. Bridge & Iron Co., St. Louis.

600 tons, generating plant, Public Service Corp. of New Jersey, Kearny, N. J., to McClintic-Marshall Corp., Bethlehem, Pa.

575 tons, Hudson River state hospital, Poughkeepsie, N. Y., to Lackawanna Steel Construction Co., Buffalo; Carder Realty Corp., New York, contractor.

565 tons, post office, Stockton, Calif., to McClintic-Marshall Corp., Bethlehem, Pa.

565 tons, armory and market, Lynchburg, Va., to McClintic-Marshall Corp., Bethlehem, Pa.

535 tons, armory, Peekskill, N. Y., to Lackawanna Steel Construction Co., Buffalo, through Lasala Mason Co., contractor.

500 tons, sheet piling, foundation, First National bank, Wall street and Broadway, New York, to Carnegie Steel Co., Pittsburgh; Thomas Crimmins Contracting Co., sub-contractor. Reported last week as 250 tons going to another mill.

500 tons, gates for government intracoastal channel, Harvey, La., to Virginia Bridge & Iron Co., Roanoke, Va., through Hardie-Tynes Mfg. Co.; award to latter noted in STEEL, Dec. 26, 1931.

450 tons, public school 19, New York, to J. Klein Iron Works, New York; C. J. Murphy Co., contractor.

450 tons, highway bridge, Queens (New York), to J. Klein Iron Works Inc., New York.

422 tons, addition, Attica state prison, New York, to Ernst Iron Works, Buffalo.

400 tons, Ohio highway bridges, letting of Jan. 8; 243 tons to American Bridge Co., Pittsburgh and 157 tons to McClintic-Marshall Corp., Bethlehem, Pa.

350 tons, public school 16, New York, to Easton Structural Steel Co., Easton, Pa.; Shaw Engineering Co., contractor.

325 tons, reconstruction home, state project, West Haverstraw, N. Y., to Ingalls Iron Works Co., Verona, Pa.; Agostini Bros., New York, contractors.

322 tons, bridge, Front street, Cumberland, Md., for Baltimore & Ohio railroad, to unstated.

300 tons, gas cell, navy, Lakehurst, N. J., to Morris, Wheeler & Co. Inc., Philadelphia.

250 tons, additional units, Monroe county home, Rochester, N. Y., to F. L. Heughes & Co., Rochester.

244 tons, four Ohio highway projects, Nos. 565 and 599 (letting of Dec. 29) and projects Nos. 27 and 62 (letting of Jan. 8) to American Bridge Co., Pittsburgh, through Middle States Construction Co., Columbus, O.

150 tons, shapes (110) bars (40), fire engine house and police clinic building, Thirteenth and K streets, Washington, to Dietrich Bros., Baltimore; W. P. Rose Co., Goldsboro, N. C., contractor.

150 tons, nurses' home, Fall River, Mass., to Boston Bridge Works Inc., Boston.

115 tons, store addition, Klee Bros. & Co., and garage for Cooper Carlton Drug Co., Chicago, to Wendnagle & Co., Chicago.

110 tons, four Ohio highway projects, Nos. 569, 547, 595 and 600, letting of Dec. 29, to Fort Pitt Bridge Works Co., Pittsburgh, through Rohe Construction Co., Canton, O. Shapes to be fabricated at Massillon, O., division.

100 tons, highway bridge near Centerville, Mich., to Elkhart Bridge & Iron Works, Elkhart, Ind.

100 tons, shapes and bars, addition, veterans' hospital, Rutland, Mass., shapes to Bethlehem Fabricators Inc., Bethlehem, Pa.; bars not yet awarded;

Awards Compared

	Tons
Awards, week ended Jan. 23	**16,163**
Awards, week ended Jan. 16	**19,782**
Awards, week ended Jan. 9	**12,333**
Awards, this week in 1931	**31,592**
Av. weekly awards, 1931	**34,236**
Av. weekly awards, 1932	**16,346**
Av. weekly awards, Dec.	**23,286**
Total awards to date, 1931	**114,741**
Total awards to date, 1932	**65,385**

W. P. Thurston, Richmond, Va., contractor.

100 tons, telephone building, Sixty-ninth and Vermont streets, Los Angeles, to Minneapolis-Moline Power Implement Co., Minneapolis.

100 tons, school, Florian Park, N. J., to Standard Iron Works, Newark, N. J.

Contracts Pending

12,000 tons, towers and anchor bents, Tri-boro bridge, New York, temporarily held up by revised New York financial program.

10,000 tons, postoffice, Los Angeles; plans being prepared and appropriation sought.

8000 to 10,000 tons, union terminal, Los Angeles; plans being prepared.

3000 tons, building, Maplewood avenue, Montreal, Que., for University of Montreal, Montreal.

3000 tons, bridges at Chippewa Falls and Depere, Wis.

2970 tons, postoffice, Atlanta, Ga.; Great Lakes Construction Co., Chicago, low on general contract.

2500 tons publishing plant, Christian Science Publishing Society, Boston.

1500 tons, postoffice, Phoenix, Ariz.; plans being prepared.

1200 tons, highway bridges, Texas.

1000 tons, postoffice, Texarkana, Ark.

1000 tons, proposed Blythwood school, Strathbowan Crescent, for board of education, College street, Toronto, Ont.

800 tons, plates and shapes, two 25-ton floating cranes for United States navy, Mare Island, Calif., and San Diego, Calif.; bids at Washington Feb. 3.

750 tons, state bridge, Westfield, Mass.

700 tons, highway bridges, Minnesota.

700 tons, apartment building, Evanston, Ill.

700 tons, state bridge, Westfield, Mass.

656 tons, highway work, Los Angeles county, Calif.; bids about March 1.

643 tons, 11 state bridges, Ohio highway department, Columbus, O.; bids of Jan. 22.

600 tons, postoffice, Long Beach, Calif.; bids opened.

500 tons, East Liberty Presbyterian church, Pittsburgh.

300 tons, helium building, Lakehurst, N. J.; H. John Haman Co., Philadelphia, low.

250 tons, service station, Cleveland, for Goodyear Tire & Rubber Co., Akron, O.; Hunkin-Conkey Co., Cleveland, contractor.

200 tons, parochial school and parish house, Jackson Heights, N. Y.

200 tons, vaults, United States assay office, New York.

200 tons, parochial school, Jackson Heights, New York.

200 tons, coal tipple in Indiana, unstated location.

150 tons, postoffice, Beverly Hills, Calif.; bids about March 1.

150 tons, Reading Co. freight and passenger station, Chelton avenue, Philadelphia; bids in.

Car for Bulk Materials

New York Central railroad plans to introduce shortly in Chicago and the Middle West a new type car for the transportation of bulk building materials. The car is of flat construction and designed to carry 12 separate dump-bottom containers holding about 5 tons of material each.

Concrete Bars

Concessions Still Prevail On Large Buying—Awards And Inquiry Declined Last Week —1400 Tons Placed for Ft. Wayne, Ind., Sewage Plant —State Bridges Prevail

REINFORCING BAR PRICES, PAGE 43

Chicago—Leading in reinforcing bar awards is 1400 tons for the Ft. Wayne, Ind., sewage disposal plant. A 15-story medical and dental building in Chicago for University of Illinois hinges upon available tax money. Much work is postponed, including work on the Manteno, Ill., and 15 other state hospitals. About 460 tons will be bought soon for Manheim road, Chicago. Billet bars are 1.75c to 2.00c; rail steel, 1.55c to 1.80c.

As a result of its financial difficulties, the Chicago sanitary district has asked the federal government for a longer time to complete its construction program laid down following the decision of the United States supreme court in the Great Lakes level litigation.

Boston—Concrete reinforcing bar prices have sagged in several larger recent awards, but on small lots, and the bulk of volume, buyers are paying the quoted price. New inquiry is light, less than 800 tons, including schools at Cambridge and Melrose, Mass.

New York—Reinforcing bars are steadier on small lots with some shading on larger tonnages. Lettings, however, are light, although a cell block at Attica took 700 tons. Fresh inquiry is also off.

Philadelphia—A fair reinforcing tonnage is in prospect, including the Coatesville, Pa., hospital and the air corps barracks, Bolling field, D. C. Mill lengths are fairly steady at 1.60c, Pittsburgh.

Buffalo—Buffalo producers of reinforcing bars have booked practically nothing of large size this year. So little inquiry is pending that there seems scant prospect of an early turn from dull trade which has prevailed.

Pittsburgh—Reinforcing bars are seasonally quiet, inquiry and awards usually taking only small lots. Prospective work is fairly large. The market generally is steady at 1.60c for average lots of mill lengths. Concessions are limited to larger orders.

Cleveland — Contractors whose bids went in Jan. 22 may be expected to be named soon on 26 small bridge projects for the Ohio highway department. These jobs total 470 tons of reinforcing steel. Bids on about 425 tons of reinforcing rods go in Feb. 2 for the Niles, O., bridge. Awards are being made for the Ohio letting of Dec. 29.

Awards Compared

	Tons
Awards, week ended Jan. 23	5,562
Awards, week ended Jan. 16	6,002
Awards, week ended Jan. 9	3,315
Awards, this week, 1931....	4,981
Av. weekly awards, 1931	6,808
Av. weekly awards, 1932....	7,134
Av. weekly awards, Dec.	4,623
Total awards to date, 1931	23,663
Total awards to date, 1932	28,537

Contracts Placed

1400 tons, sewage treatment works, Ft. Wayne, Ind., to Joslyn Mfg. & Supply Co., Ft. Wayne.

715 tons, hospital buildings, veterans' home, Yountville, Calif., to unnamed interest.

700 tons, addition to prison, Attica, N. Y., to Concrete Steel Co., New York.

600 tons, postoffice, Pittsburgh, to Kalman Steel Corp., Bethlehem, Pa., through Aronberg-Fried Co., New York, contractor.

600 tons, part award for Cle Elum, Wash., irrigation dam, for United States government to Sheffield Steel Corp., Kansas City, Mo.

300 tons, grade separation, Santa Fe tracks, Arcadia, Calif., to unnamed interest.

170 tons, grade crossing, Delaware & Hudson railroad, Whitehall, N. Y., to Kalman Steel Corp., Bethlehem, Pa.

150 tons, museum, Balboa park, San Diego, Calif., to unnamed interest.

140 tons, Ohio highway projects, Nos. 596, 601 and 602 (61 tons) to Buffalo Steel Co., Tonawanda, N. Y., through Indiana Engineering & Construction Co., Akron, O.; No. 581 (62 tons), to Ben-Tom Supply Co., Columbus, O., through Standard Engineering & Construction Co., Pittsburgh, and 17 tons to Ben-Tom Supply Co., Columbus, through Middle States Construction Co., Columbus, steel to be supplied by West Virginia Rail Co., Huntington, W. Va.

134 tons, dam, Pacoima, Calif., to Blue Diamond Corp., Los Angeles.

125 tons, grade crossing, Boston & Maine railroad, Littleton, Mass., to Kalman Steel Corp., Bethlehem, Pa.

113 tons, bridge, Wickenburg, Ariz., to unnamed interest.

110 tons, library, Chico, Calif., for State

Teachers' college, to unnamed interest.
105 tons, state hospital unit, Waltham, Mass., to Barker Steel Co., Boston.
100 tons, postoffice building, Port Angeles, Wash., to Pacific Coast Steel Corp., Seattle.
100 tons, approximately, projects 562 and 570, Ohio highway department, to Ben-Tom Supply Co., Columbus, O., through Pringle Construction Co., Batavia, O., and W. A. Yeagle, Clyde, O.

Contracts Pending

700 tons, mail handling building for Union Terminal Co., Cincinnati; general contract to James Stewart & Co. Inc., New York.
550 tons, foundations, archives building, Washington; F. L. Cranford Inc., Brooklyn, N. Y., low.
466 tons, 25 state bridges, Ohio highway department, Columbus, O.; bids of Jan. 22.
460 tons, Manheim road bridge, Chicago; bids Jan. 27.
425 tons, bridge, Niles, O.; bids close Feb. 2, county seat, Warren, O.
350 tons, school, Melrose, Mass.
210 tons, Delhi road project, Hamilton county, O.; bids on general contract Jan. 29.
210 tons, highway work, Sonoma and Mendocino counties, Calif.; bids Jan. 27.
200 tons, exchange building for Illinois Bell Telephone Co., Winnetka, Ill.
150 tons, addition to Hotel El Capitan, Merced, Calif.; bids opened.
140 tons, west approach to municipal free bridge, St. Louis; bids by board of public service, city hall, St. Louis.
134 tons, Los Angeles county, Calif.; bids opened.
110 tons, sewer, Brooklyn, N. Y.
100 tons, library for teachers' college, Fresno, Calif.; bids Feb. 2.
100 tons, bridge over Sorrento canyon, San Diego county, Calif.; bids opened.
Unstated tonnage, 15-story medical and dental building, Chicago, for University of Illinois at Chicago.
Unstated tonnage, aircorps barracks, Bolling field, D. C.; bids Jan. 27.
Unstated tonnage, veterans' hospital, Coatesville, Pa.; Sinclair & Grigg, Philadelphia, general contractors.

Bolt, Nut, Rivet Orders In Gain at Chicago

Bolts, Nuts, Rivets Prices, Page 43

Chicago—Specifications for bolts, nuts and rivets have improved. Jobber buying reflects balancing of inventories and the volume from scattered operations of implement works is of material support. Automotive requirements also are filling in. Weakness is shown in quotations of 73, 10 and 10 off for bolts and nuts, but rivets remain steady.

Philadelphia — Rivets are unchanged at 2.25c Pittsburgh. Through mechanical error the price of rivets was noted in the Jan. 18 issue of STEEL as being 2.00c with 2.25c being done occasionally. Bolts and nuts are 73 and two 10's off, with an added 5 offered on especially desirable tonnage.

Pittsburgh — Specifications for bolts, nuts and rivets are quiet and business lacks improvement over the December rate. Jobbers are making only small purchases and no buyers are anticipating future requirements. The general market continues 73, 10 and 10 off for bolts and nuts and 2.25c for large rivets, with occasional shading noted in some districts.

Mineral production of Alaska was valued at $12,010,000 in 1931 compared with $13,812,000 in 1930, states the federal geological survey.

Domestic Fluorspar Up $2

Fluorspar Prices, Page 50

Domestic gravel fluorspar has been advanced $2 a net ton and is now quoted on a delivered Pittsburgh equivalent of $20.31. No. 2 lump is $22.31, delivered Pittsburgh equivalent.

Pipe

Steel Pipe in Better Demand— New York Delays Inquiry for 15,000 Tons Cast Iron Pipe

PIPE PRICES, PAGE 54

New York—Withdrawal of the New York inquiry for yard stocks delays action on close to 15,000 tons of cast pipe. Washington has bids on close to 5000 tons with alternates on concrete. A contractors' letting for Queens takes 850 tons. Large tonnage awards are off, but small lot fill-in buying holds well. Prices are easy and mixed with some jobs figuring back to $24, and under, foundry.

Boston—Boston has covered on early year requirements. Woonsocket, R. I., is to buy 200 tons of 6 to 20-inch and Portland, Me., a small tonnage of 8-inch. Prices continue soft.

Buffalo — The city legal department has ruled that the award of 8000 tons of cast iron water pipe to the United States Pipe & Foundry Co. is legal, thereby placing final approval on the contract against which protests had been filed by unsuccessful bidders.

Pittsburgh—Pipe demand is slightly more active, orders from jobbers showing a moderate increase. Tubular products for oil and gas well drilling are quiet while inquiries for line pipe still have not reached an active stage. Preliminary work on several line pipe projects is being done. Mechanical tubing is slightly more active than a month ago.

Philadelphia—United Gas Improvement Co., Philadelphia, has placed blanket contracts for 1932 routine pipe requirements with several mills.

Cleveland—Jobbing outlets for tubular products show little improvement. Buying by the trade has been extremely quiet. A 135-ton purchase of conduit from a nearby mill last week was the largest order received in some time.

Chicago—An 8-inch oil line from Beaumont to High Island, Tex., 43 miles, is being projected by the Yount-Lee Oil Co. Inc., Beaumont, Tex. Cast pipe is quiet. Public utility companies have placed about 500 tons in miscellaneous lots.

Birmingham, Ala.—Scattered orders are being received. Production is being held to around 40 per cent capacity. Indications are still reported of active purchasing by municipalities and corporations early in the spring.

Cast Pipe Placed

850 tons, 8 to 12-inch, Queens (New York), to Warren Foundry & Pipe Co., Phillipsburg, N. J.; contractor's letting.

Steel Pipe Placed

Unstated tonnage, steel pipe, Consolidated Gas Co., Brooklyn, N. Y., placed with unstated.

Cast Pipe Pending

2441 tons, 18 and 20-inch, class B, Signal Hill, Calif.; bids Jan. 25; alternate bids on welded steel pipe and reinforced concrete pipe.
472 tons, 18-inch class B and C, Burbank, Calif.; bids opened.
200 tons, 6 to 12-inch, Bethlehem, Pa.; bids in.
200 tons, 6 to 20-inch, Woonsocket, R. I.; bids in.
170 tons, 12-inch class 150, Fallon, Nev.; bids opened.
143 tons, 6 and 8-inch, Alhambra, Calif.; bids opened.

Steel Pipe Pending

2450 tons, 30, 36 and 42-inch steel pipe, Minneapolis; bids opened Jan. 21.
Unstated tonnage, 8500 feet welded wrought iron pipe, Parris Island, S. C., and 200 feet, Brooklyn, N. Y., navy; bids Feb. 1.
Unstated tonnage, 8-inch oil-line pipe from Beaumont to High Island, Tex., for Yount-Lee Oil Co. Inc., Beaumont, Tex.
Unstated tonnage, 16 to 20-inch, line from Chicago to Detroit; and 10 to 12-inch, line from Detroit to Saginaw, Mich. Reported to be for Empire Gas & Fuel Co., subsidiary of Cities Service Corp., New York.

Strip

Buying Is Hesitant and Little Over December Rate—Some Weak Spots Appear in Prices

STRIP PRICES, PAGE 43

Pittsburgh—Hesitancy continues in automotive strip buying. Specifications are improving only gradually and total business is little changed from the December volume. Eventual buying by the Ford Motor Co. is expected to stimulate general activity materially but little change is looked for during the next several weeks. Prices have acquired little strength, continuing 1.50c to 1.60c and 1.40c to 1.50c for the two sizes of hot strip and 1.95c to 2.05c for cold-rolled strip. Mill operations hold around 25 per cent.

Worcester, Mass.—Cold-rolled strip has dropped to 2.15c. Production shows no improvement. Inquiry and demand is strong on the west coast but local consumption is slight.

Philadelphia—Hot-rolled strip at 1.45c and 1.55c, Pittsburgh, for wide and narrow, is subject to shading of $1. Cold-rolled strip is unsettled at 1.90c to 2.05c, Pittsburgh. Trading is spotty.

Youngstown, O.—Strip steel specifications are being released in about the same volume as for several weeks, with possibly a shade of improvement this week. Narrow width hot-rolled leads, interspersed with cold-rolled specifications in small lots. Shipments are rush, especially on cold-rolled.

Cleveland — One maker of cold-rolled strip in a nearby district continues more active in January than in some months. Hot-rolled sales are expanding only moderately. Prices on the two hot-rolled widths are perhaps best represented by 1.45c and 1.55c, Pittsburgh. Ordering by an automobile lamp interest near here of hot-rolled strip for chrome plating has been a sustaining force. A purchase last week in Detroit of less than 100 tons of wide hot-rolled attracted a bid considerably below the present quoted Pittsburgh base.

Operations 27 Last Week; Now Are 28 Per Cent

Youngstown, O.—Steel ingot output here last week averaged 34 per cent, up two points. For the current week the 34 per cent rate is expected to be unchanged. Finishing mill operations, however, were expected to be higher this week, both sheet and pipe output increasing. Twenty-four of 68 open hearths are melting in the Mahoning valley and 32 of 83 in the entire district, where heavier schedules of United States Steel Corp. subsidiaries are a feature. Better sheet mill operations are expected over the next few weeks.

Philadelphia — Ingot production last week was slightly higher at 17-18 per cent capacity. Little immediate change is expected.

Buffalo—Steelworks are expected to operate at 22 per cent capacity this week, compared with 13 per cent for the week ending Jan. 23. Staggered operations continue responsible for these wide fluctuations. Only five furnaces were operating here last week, with eight listed as prospective producers this week.

Operations, week of Jan. 23	**27**
Operations, week of Jan. 16	**26**
Operations, week of Jan. 9	**25**
Operations, this week, 1931	**46.5**
High, 1931-32 (March 19)	**57**
Low, 1931-32 (Dec. 26)	**15-20**

Pittsburgh—Steel output advanced to slightly above 25 per cent the past week, but with prospects for no major change this week. Operations of steelworks blast furnaces continue at 10 active of 54. Sheet output is lower at slightly above 25 per cent with tin plate unchanged at 40. Strip and pipe continue at 25.

Cleveland—Steel ingot production at 38 per cent was up three points last week. Expectations point to a gain to 41 per cent this week. A steelworks here revised its plans last week, and instead of adding two open hearths earlier in the week scheduled addition of one each on Jan. 23 and 25. At present 13 of 34 open hearths of four mills here are operating. As of Jan. 23 both Otis Steel Co. and American Steel & Wire Co. had four open hearths on and Corrigan, McKinney Steel Co. was making bottom on a fifth.

Chicago—Several open hearth additions last week boosted ingot production several points above preliminary estimates of 20 per cent, and this week the district's ingot production will be 24 to 25 per cent. Blast furnace activity is unchanged with nine of 36 steelworks stacks blowing. Rail mill operations here are completely down for the first time in over a year.

Birminghanl, Ala.—Steel production was continued unchanged last week at 60 per cent capacity. Tennessee Coal, Iron & Railroad Co. is steady with ten of 18 open hearths on and Gulf States Steel Co. likewise is unchanged with three producing.

Warehouse Sales Still Dull; Some Prices Soft

Warehouse Prices, Page 54

New York—Buying is confined to small lots, but fairly well spread. While sheet prices have not been officially reduced, shading prevails, especially in combination orders.

Boston—Warehouse volume is slow to recover from the holiday slump and thus far in 1932 has not reached the December rate. Prices are fairly steady.

Philadelphia — Due to the slow start, bookings this month will be behind December. Prices are unchanged.

Pittsburgh—Sales are steady, but little changed from quiet December activity. Prices are unchanged.

Cincinnati—Improvement in tonnage so far in January is disappointing. New schedule of cutting extras has been adopted. Quotations are unchanged.

Chicago—Warehouse orders are a shade heavier than in December. Much of the scattered buying is due to inventory replenishment.

St. Louis—Moderate improvement is reported in demand for steel. Sheets are more active than recently. There is more activity in tubular goods.

Electric Orders Decline

Orders received by General Electric Co., Schenectady, N. Y., in 1931 amounted to $252,021,496, compared with $341,820,312 for 1930, a decrease of 26 per cent.

Orders for the fourth quarter totaled $49,321,480, compared with $74,168,480 for the last quarter of 1930, a decrease of 34 per cent.

At Medina, N. Y., the Medina Machine & Stamping Co., is working overtime on auto parts orders, while the Medina Iron & Brass Co. and the Bignall Mfg. Co. have resumed on a larger scale.

Raw Material Prices

Delivered pig iron prices subject to 10 per cent freight surcharge, maximum 13.44c gross ton, from Jan. 4

Pig Iron

Per Gross Ton

FOUNDRY, NO. 2

Chicago furnace	$16.50
Pittsburgh, dist. fur.	16.50 to 17.00
Pittsburgh, delivered	17.13 to 18.13
Valley furnace	15.50 to 16.00
Cleveland fur., local del.	16.00
Philadelphia, delivered	15.26 to 15.76
Virginia furnace	17.50
Granite City, Ill., fur.	17.50
Buffalo, fur., local del.	16.00
Buff., all-rail, Boston	19.91 to 20.41
Buff., all-rail, Brooklyn	19.40 to 19.90
Buff., all-rail, Newark	17.78 to 18.28
Ala., Bir. fur., local del.	12.00
Ala., Nor. del., Bir. base	10.00
Alabama, del. Chicago	16.01
Alabama, del. St. L.	14.42
Alabama, del. Cincinnati	13.82
Ala., Phila., dock del.	15.00 to 15.25
Ala., Balt., dock del.	15.00
Alabama, New York dock	15.50
Ala., Boston dock del.	16.50 to 16.75
Tenn., Bir. base, local del.	13.00
Tennessee, del. Cinn.	13.82
Montreal, delivered	23.00 to 23.50
Toronto, delivered	22.10

FOUNDRY, NO. 2X

Buffalo, fur., local del.	16.50
Buff., all-rail, Brooklyn	19.90 to 20.40
Buffalo, all-rail Newark	18.28 to 18.78
Buff., all-rail, Boston	20.91 to 21.41
Virginia furnace	18.00
Eastern, del. Phila.	15.76 to 16.26

FOUNDRY, NO. 1X

Buffalo fur., local del.	17.50
Eastern, del. Phila.	16.26 to 16.76

MALLEABLE

Valley furnace	16.00 to 16.50
Cleveland fur., local del.	16.00
Pittsburgh dis. fur.	16.50 to 17.00
Pittsburgh, delivered	17.13 to 18.13
Chicago, furnace	16.50
Buffalo fur., local del.	15.50 to 16.00
Eastern Penna., delivered	17.76 to 19.91
Granite City, Ill., fur.	17.50
Montreal, delivered	24.00
Toronto, delivered	22.60

BASIC

Pittsburgh, district fur.	15.50 to 16.00
Pittsburgh, delivered	16.13 to 17.13
Eastern Penn., del.	16.00 to 16.50
Buffalo fur., local del.	15.50 to 16.00
Montreal, delivered	23.50
Valley, furnace	15.00

BESSEMER

Valley furnace	16.00 to 16.50
Pittsburgh, delivered	17.13 to 18.13
Pittsburgh, furnace	16.50 to 17.00

LOW PHOS.

Valley fur., standard	27.00
Philadelphia, standard	23.76 to 26.79
Copper-bear., E. Pa. fur.	21.50 to 23.00

GRAY FORGE

Valley furnace	15.50
Pittsburgh district fur.	16.00 to 16.50
Pittsburgh, delivered	16.63 to 17.63

CHARCOAL

Lake Superior, del. Chicago	23.04

SILVERY

Jackson County, O., fur. in per cents: 6—$19; 7—$19.50; 8—$19.00 to $21.00; 9—$20.50; 10—$21; 11—$22; 12—$23; 13—$25.

BESSEMER FERROSILICON

Jackson County, O., fur. in per cents: 10—$23; 11—$24; 12—$25; 13—$27; 14—$29; 15—$31; 16—$33.

Coke

Prices Per Net Ton

Beehive Ovens

Connellsville furnace	$2.25 to 2.35
Connellsville foundry	3.25 to 4.50
New River foundry	6.00
Wise county foundry	4.25 to 5.00
Wise county furnace	3.50 to 4.25

By-Product Foundry

Newark, N. J., del.	8.76 to 9.16
Chicago, ovens	7.50
New England, del.	10.50
St. Louis, del.	8.50
Birmingham, ovens	4.50
Indianapolis, del.	8.32
Ashland, Ky., ovens, Connell., basis	5.50
Portsmouth, O., ovens Connell., basis	5.50
Buffalo, ovens	8.00 to 8.50
Detroit, ovens	8.00
Philadelphia, del.	8.75

Iron Ore

LAKE SUPERIOR ORE

Gross ton, 51½%, Lower Lake Ports	
Old range bessemer	$4.80
Mesabi bessemer	4.65
Old range nonbessemer	4.65
Mesabi nonbessemer	4.50
High phosphorus	4.40

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic, 56-63%, contract	9.00
Copper-free low phos. 58-65%	nom.

FOREIGN ORE

Cents per units, alongside docks Atlantic ports

Foreign manganiferous ore, 45-55% iron, 6-10% man.	9.50 to 10.00
North African low phos.	8.00 to 9.00
Swedish basic, 65%	8.00
Swedish low phos.	9.00
Spanish, North African basic, 50 to 60%	7.00 to 8.50
Newfoundland fdy., 55%	8.00
Tungsten, spot and future short ton unit, duty paid	$11.00
Chrome ore, 48% net ton c.i.f.	$18.00 to 19.00

Manganese Ore

Prices, not including duty, are cents per unit; cargo lots.

Caucasian, 52-55% (nom.)	26 cents
South African, 52%	23 to 24 cents
South African, 49-51%	22 to 23 cents
South African, 44-47%	21.00 to 21.50
Indian, 48-50%	nom.
Brazilian, 46-48% (nom.)	nominal

Refractories

FIRE CLAY BRICK

Per 1000 f.o.b. Works

First Quality

Pennsylvania, Ohio, Illinois, Kentucky, Maryland, Georgia, Alabama	$38.00
Missouri	35.00

Second Quality

Pennsylvania, Ohio, Illinois, Kentucky, Missouri, Maryland	25.00 to 30.00
Georgia, Alabama	30.00

SILICA BRICK

Pennsylvania	38.00
Joliet, Ill., East Chicago, Ind.	47.00
Birmingham, Ala.	50.00

MAGNESITE BRICK

Per Net Ton

9 x 4½ x 2½	$65.00

CHROME BRICK

Per Net Ton

F.o.b. shipping point	$42.50

MAGNESITE

Dead burned grain, net ton, Chester, Pa., or Baltimore bases	40.00
Domes, Chewelah, Wash., base	22.00

Semifinished Steel

Prices Per Gross Ton

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$27.00 to 28.00
Pittsburgh, bessemer	27.00 to 28.00
Youngstown	27.00
Cleveland	27.00
Philadelphia	33.75 to 34.75
Chicago	29.00
Forging, Chicago	35.00 to 36.00
Forging, Pittsburgh	34.00 to 35.00
Forging, Philadelphia	39.75

SHEET BARS

Pittsburgh	27.00
Youngstown	26.00
Cleveland	26.00
Chicago	29.00

SLABS

Pittsburgh	27.00 to 28.00
Youngstown	27.00
Cleveland	27.00

WIRE RODS

Pittsburgh, Cleveland	$37.00
Chicago	36.00 to 38.00

SKELP

All grades, Pittsburgh	1.50c

Ferroalloys

(In dollars, except Ferrochrome)

*Ferromanganese, 78-82%, tidewater, duty paid	$75.00
*Ferromanganese, del. Pittsburgh	79.85½
Spiegeleisen, 19-20%, domestic fur. spot†	27.00
Ferrosilicon, 50 per cent, freight all., c. l.	77.50
Do, less carload	85.00
Do, 75 per cent	126.00 to 136.00
Silicomang., 2½% carb.	105.00
2% carbon	110.00
1% carbon	115.00
(Spot prices, $5 a ton higher.)	
Ferrochrome, 60-70 chromium, 4-6 carbon, cts. lb. con. del.	10.00
Do, for spot delivery	10.50
Ferrotungsten, stand., lb. cont.	1.10 to 1.20
Ferrovanadium, 30-40 per cent, per lb. contained, on analysis	3.05 to 3.30
Ferrotitanium, c.l., prod. plant, frt. allow., net ton	137.50
Spot, 1 ton, frt., all., lb.	8.50
Do, under 1 ton	9.00
Ferrophosphorus, per ton, carload 17-19 per cent, Rockdale, Tenn., basis, (18 per cent)	91.00
Ferrophosphorus, electrolytic per ton carload, 23-25% f.o.b. Anniston, Ala., 24%	122.50
Ferromolybdenum, stand. 50-60 per cent. per lb.	0.95
Cal. Molybdate, lb. cont.	0.80
Molyte, lb. cont.	.80

†Carloads. Differentials apply to quant.
*To users of carloads to 1000 tons annually. Differentials to large users.

Fluorspar

85 and 5 per cent grade

Washed gravel, domes., net ton, del. Pitts. equiv.	$20.31
Washed gravel, import duty paid tide, gross ton	13.50

Pig Iron

Melters Show More Confidence —Lake Furnace Sales Improve —Shipments Gain Moderately

PIG IRON PRICES, PAGE 50

Pittsburgh—Pig iron orders and inquiry are slightly more active following several weeks of almost complete absence of buying. Activity still is at a low ebb but the small size of consumers' stocks is expected to result in better buying upon an upturn in foundry operations. National Radiator Corp. is inquiring for 1500 tons of foundry iron for February and March delivery, and a few smaller inquiries have appeared from other sources. Prices are receiving little test, generally being $15.50 to $16, valley, for No. 2 foundry and $16 to $16.50 for bessemer and malleable, with the Pittsburgh furnace price 50 cents higher. The Neville Island stack has resumed operations after being banked since November.

Boston—Pig iron sales have been largely for recently imported Dutch iron from Providence, a good part of the 5000 tons having been sold, including close to 3000 tons to a textile machinery buyer attracted by the price. Delivery of a carload has been made at Bridgewater at $17.50. Depreciated foreign exchange has worked favorably toward moving this iron at prices which have unsettled the market. Domestic iron is moving in small shipments which are gradually, but steadily reducing the Mystic furnace pile.

New York—While there is little to test the market prices appear firmer. Buffalo iron for delivery in this district is holding at $14.50 to $15, furnace. Stocks of Buffalo iron in this district probably do not exceed 10,000 tons. Sellers of this iron are wary about laying down large stocks not only because of light demand but because of possible changes in the trend of consumers' specifications. For instance, at one time northern New Jersey foundries usually specified No. 2 plain, but they now are more inclined to specify the higher silicons and use a greater amount of scrap.

Philadelphia—The market is quiet, although inquiry is improving and the volume of small orders is larger. Eastern Pennsylvania foundry iron is $15, delivered.

Buffalo—A substantial improvement has taken place in demand for ferrobessemer and ferrosilicon iron. Purchases of these grades have broadened to the best proportions in recent months. Little change is noted in demand for ordinary foundry grades, although the Detroit district melt is reported to be increasing. In the East Dutch iron is being sold $2 to $3 below Buffalo iron.

Youngstown, O.—Some iron continues to move out of the valleys to nearby consumers. Adjoining ingot-mold foundries also are taking some hot metal. Competition continues keen. No. 2 foundry brings $15.50 to $16, valley furnace; and malleable is $16 to $16.50.

Cleveland—Pig iron producers have experienced the second consecutive week of improved sales and inquiries, furnace interests with headquarters in Cleveland booking more than 10,000 tons in the past week. A better feeling exists among melters as inquiries for their products has increased. Orders for pig iron are larger and for more extended delivery. Pending inquiry totals 6000 tons, including several lots of 1000 tons. Shipments thus far this month are 10 to 15 per cent ahead of those in December. Base prices are unchanged at $16, Cleveland furnace, for local delivery, and $15 to $15.50, lake furnaces, for outside competitive territories.

Cincinnati—Only a moderate gain in the melt has been noted in this district, with sales and shipments on a correspondingly low level. Lower quotations on southern iron failed to stimulate sales. Inquiries for northern iron for a total of about 2000 tons indicate a degree of buying revival.

Chicago—Scattered sales of spot pig iron plus a few contract orders for second quarter by regular term buyers constitute market activity. Shipments are slightly below the first 15 days of the month and in late December. Some business is placed at $16, base.

St. Louis—Purchasing has not broadened appreciably, but more inquiries have appeared. Shipments of northern and southern iron are holding up well, a number of users now taking contract quotas which had been held up. Jobbing foundries report a moderate gain in orders. Malleable shops specializing in automotive castings report more releases. Northern furnaces are meeting competition from southern iron which is $14.55½c. delivered, St. Louis.

Birmingham, Ala. — Pig iron demand is slow, though a better feeling is noted. Prices are maintained at $12, base, in the local territory, and $10 for outside shipment.

Toronto, Ont.—Sales continue restricted to small lots for immediate shipment, the total in the past week amounting to 300 tons. Pipe foundries are the largest users.

Ferroalloy Buyers Are More Confident

Ferroalloy Prices, Page 50

New York—Fair business continues in the ferroalloy market with indications of slightly more confidence on the part of consumers. The increase in steel plant operations and the improved outlook for automobile production are the chief factors. There is also stronger sentiment regarding the railroad equipment market and expectation that increased buying by the railroads will develop soon. A favorable outlook is reported for roadbuilding materials, and this, too, is reflected in the current tone of the ferroalloy market. All ferroalloy prices remain unchanged from those of a week ago.

A further slight gain is noted in current specifications for ferromanganese and spiegeleisen.

Pittsburgh—Ferroalloy shipments are improving only slightly in proportion to the mild upturn in steelmaking operations. Spot buying of ferromanganese and spiegeleisen is dull, with prices unchanged at $75 and $27, respectively. Prices on other ferroalloys are unchanged, with demand fairly steady.

Sheet Shipments Increased Slightly in December

Sheet sales reported by the National Association of Flat Rolled Steel Manufacturers, Cleveland, averaged 3216 net tons daily in December, compared with 3429 tons in November. The average output was 3279 tons, against 3425 tons in November. Shipments increased from 3166 tons to 3335 tons in December, as final specifications were issued on some contracts. Totals for last month follow: Sales, 99,706 tons; production, 3279 tons; shipments, 103,400 tons.

Unfilled tonnage as of Jan. 1 was 119,677 tons, compared with 147,169 tons Dec. 1. Total sheet capacity for the United States for December was approximately 559,000 tons, and the capacity on which the association's figures are based was 385,500 tons.

Scrap

Some Tonnage Buying Holds Price Fairly Steady—Supply Not Heavy in Steel Grades

Chicago—Following sales of 25,000 to 30,000 tons of iron and steel scrap in this market since the first of the year, more cheerful sentiment predominates. The order for 5000 tons of heavy melting steel a week ago from the leading melter has expanded into 10,000 tons. Another steelworks has purchased a small quantity, and a third has ordered 3000 to 4000 tons of charging box cast and iron car wheels, while a large plumbing foundry has bought a quantity of stove plate. Prices have tended to react with the recent reduction in heavy melting steel. A number of grades now are under $5 a ton gross. Factory hydraulic compressed sheets have been sold as low as $6.

Boston—Trend in scrap prices con-

Iron and Steel Scrap Prices

Corrected to Friday night. Gross tons delivered to consumers, except where otherwise stated

HEAVY MELTING STEEL

Birmingham	6.50 to 7.50
Boston, dealers	4.00 to 4.50
Buffalo, No. 1	8.00
Buffalo, No. 2	6.25 to 6.50
Chicago	7.00 to 7.50
Cinci., deal.	6.75 to 7.25
Cleve., No. 1	7.25 to 7.75
Cleve., No. 2	7.00 to 7.50
Det., No. 1 deal.	5.75 to 6.25
Det., No. 2 deal.	4.00 to 4.50
E. Pa. del. mill	7.00 to 8.00
N. Y. deal. R. R.	4.50 to 5.50
N. Y. deal. No. 2	3.50 to 4.00
N. Y. deal. yd.	3.50 to 4.00
Pitts. No. 1	10.00 to 10.50
St. L. No. 1 sel.	7.00 to 7.50
Federal, Ill.	6.50 to 7.00
Granite City, Ill.	6.00 to 6.50
Valleys, No. 1	9.00 to 9.50

COMPRESSED SHEETS

Buffalo, dealers	6.25 to 6.50
Chi. (Factory)	5.50 to 6.00
Cleveland	7.00 to 7.25
Detroit, dealers	5.75 to 6.25
E. Pa. new mat.	6.50 to 7.50
Pittsburgh	9.75 to 10.25
Valleys	8.25 to 8.75

BUNDLED SHEETS

Buffalo	5.50 to 5.75
Cinci., deal.	6.25 to 6.75
Cleveland	6.00 to 6.50
Eastern Pa.	5.50 to 6.00
Pittsburgh	9.25 to 9.75
St. Louis	3.50 to 4.00

SHEET CLIPPINGS LOOSE

Chicago	3.50 to 4.00
Cincinnati	3.50 to 4.00
Detroit, dealers	3.00 to 3.50
St. Louis	3.50 to 4.00

STEEL RAILS SHORT

Birmingham	10.00 to 11.00
Boston, dealers	4.25 to 4.75
Buffalo	10.00 to 11.00
Chicago (3 ft.)	8.50 to 9.00
Chicago (2 ft.)	9.25 to 9.75
Cinci., deal.	12.00 to 12.50
Detroit, deal.	10.50 to 11.00
Pitts. (open-hearth, 3 ft. and less)	12.00 to 12.50
St. Louis	11.00 to 11.50

STOVE PLATE

Birmingham	6.50 to 7.00
Boston, con.	4.50 to 5.00
Buffalo	8.25 to 8.75
Chicago, net	5.75 to 6.25
Cinci., deal. net	4.50 to 5.00
Det., net deal.	3.00 to 3.50
Eastern Pa.	7.00
N. Y., deal. mill	4.50 to 5.00
St. Louis	6.50 to 7.00

COUPLERS, SPRINGS

Buffalo	9.75 to 10.25
Chicago	8.50 to 9.00
Eastern Pa.	9.00 to 10.00
Pittsburgh	10.75 to 11.25
St. Louis	8.00 to 8.50

ANGLE BARS—STEEL

Chicago	7.75 to 8.25
St. Louis	7.00 to 7.50

LOW PHOSPHORUS

Buffalo, billets and bloom crops	11.00 to 11.50
Cleveland bil. and bloom crops	14.00 to 14.50
Eastern Pa.	12.00
Pittsburgh billet bloom crops	13.50 to 14.00
Pitts., sheet bar crops	13.00 to 13.50

FROGS, SWITCHES

Chicago	7.00 to 7.50
St. Louis	7.50 to 8.00

SHOVELING STEEL

Chicago	7.00 to 7.50
Cleveland	6.25 to 6.50
St. Louis	6.50 to 7.00

RAILROAD WROUGHT

Birmingham	7.00 to 7.25
Boston, dealers	7.00 to 7.50
Buffalo, No. 1	6.25 to 6.50
Buffalo, No. 2	8.00 to 8.25
Chicago, No. 1	7.25 to 7.85
Chicago, No. 2	7.00 to 7.50
Cinci., No. 2	6.75 to 7.25
Eastern Pa.	9.00 to 9.50
N. Y., No. 1, deal.	6.00 to 6.50
Pitts., No. 2	10.00 to 10.50
St. Louis, No. 1	4.50 to 5.00
St. Louis, No. 2	6.50 to 7.00

SPECIFICATION PIPE

Boston	4.00 to 4.25
Eastern Pa.	9.00 to 10.00
N. Y., deal.	5.00 to 5.50

BUSHELING

Buffalo, No. 1	6.25 to 6.50
Chicago, No. 1	5.50 to 6.00
Cinn., No. 1 dl.	5.00 to 5.50
Cinn., No. 2	3.50 to 4.00
Cleve., No. 2	4.25 to 4.50
Det., No. 1 new deal.	4.50 to 5.00
St. L., No. 1	5.00 to 6.50
Val. new No. 1	8.50 to 9.00

MACHINE TURNINGS

Birmingham	3.00 to 3.50
Boston, dealers	1.05 to 1.55
Buffalo	4.75 to 5.25
Chicago	4.00 to 4.50
Cinn., deal.	3.25 to 3.75
Cleveland	4.00 to 4.50
Detroit	3.25 to 3.75
Eastern Pa.	4.50
N. Y., deal.	1.35 to 1.50
Pittsburgh	6.75 to 7.00
St. Louis	2.50 to 3.00
Valleys	6.50 to 7.00

BORINGS AND TURNINGS For Blast Furnace Use

Boston, dealers	1.25 to 1.50
Buffalo	6.00 to 6.25
Cinn., deal.	3.25 to 3.75
Cleveland	4.25 to 4.75
Detroit, deal.	3.50 to 4.00
Eastern Pa.	3.00 to 3.50
N. Y., deal.	1.35 to 1.50
Pittsburgh	6.75 to 7.00

CAST IRON BORINGS

Birming., chem.	12.50 to 13.00
Birming., plain	3.00 to 3.50
Boston, chem.	6.50 to 7.25
Boston, deal.	1.05 to 1.55
Buffalo	6.00 to 6.25
Chicago	3.50 to 4.00
Cinn., deal.	3.25 to 3.75
Cleveland	4.25 to 4.75
Detroit, deal.	3.50 to 4.00
Eastern Pa.	3.00 to 3.50
E. Pa., chem.	10.50 to 12.00
N. Y., deal.	1.50 to 2.00
Pittsburgh	6.75 to 7.00
St. Louis	5.00 to 5.50

PIPE AND FLUES

Cinn., deal.	6.00 to 6.50

RAILROAD GRATE BARS

Buffalo	5.25 to 5.75
Chicago, net	5.75 to 6.25
Cincinnati	5.50 to 6.00
Eastern Pa.	7.00
N. Y., deal.	5.00 to 5.50
St. Louis	5.75 to 6.25

FORGE FLASHINGS

Boston, deal.	5.00 to 5.25
Buffalo	6.25 to 6.50
Cleve. ov. 10 in.	7.00 to 7.50
Detroit	4.75 to 5.25

FORGE SCRAP

Boston, deal.	1.50 to 2.00
Chicago	9.50 to 10.00
Eastern Pa., del.	6.75

ARCH BARS, TRANSOMS

Chicago, net	7.85 to 8.40
St. Louis	6.50 to 7.00

AXLE TURNINGS

Boston, deal.	6.75 to 7.00
Buffalo	6.75 to 7.25
Chi., steelworks	5.75 to 6.25
Cleveland	6.75 to 7.00
Eastern Pa. del.	7.00 to 8.00
Pittsburgh, O. H.	8.75 to 9.25
St. Louis	5.00 to 5.50

STEEL CAR AXLES

Birmingham	11.50 to 12.00
Boston, ship. pt.	11.00 to 11.50
Buffalo	12.00 to 12.50
Chicago	11.75 to 12.30
Eastern Pa.	14.50 to 15.00
St. Louis	11.50 to 12.00

SHAFTING

Bos., ship. pt.	10.00 to 10.50
Chicago	7.85 to 8.40
N. Y., deal.	9.00 to 9.50
St. Louis	8.50 to 9.00
E. Penna.	15.00 to 15.50

CAR WHEELS

Birming. iron	8.00 to 9.00
Boston, iron	11.00 to 12.00
Buffalo, iron	9.25 to 9.75
Buffalo, steel	9.75 to 10.25
Chicago, iron	7.00 to 7.50
Chi., rolled steel	8.50 to 9.00
Cincinnati, iron	9.50 to 10.00
E. Pa. steel	9.00 to 10.00
E. Pa. iron	10.00 to 11.00
Pitts. iron	10.00 to 10.50
Pitts., steel	10.75 to 11.25
St. Louis, iron	7.00 to 7.50
St. Louis, steel	6.50 to 7.00

NO. 1 CAST SCRAP

Birmingham	8.50 to 9.00
Buffalo (Mach.)	9.25 to 9.75
Boston, textile	7.00 to 8.50
Chicago, mach.	8.90 to 9.50
Chi., railroad	7.55 to 8.10
Chicago, agri.	7.00 to 7.55
Cinn., mach. cup., gross	10.00 to 10.50
Cleve. cupola	10.00 to 10.50
Det., net deal.	8.00 to 8.50
E. Pa. cupola	10.50 to 11.50
N. Y. cup. deal.	7.00 to 7.50
N. Y., del. local foundries	11.00
Pitts., cupola	10.00 to 10.50
San Fran., del.	13.50 to 14.00
Seattle	5.00 to 7.50
St. L. No. 1 ma.	7.00 to 7.50
St. L., No. 1	6.50 to 7.00

HEAVY CAST

Boston	6.00 to 6.50
Bost. mach. cast	8.00 to 9.00
Buffalo, break	5.50 to 6.00
Cleve., break	6.00 to 6.50
Detroit, auto, net deal.	10.00 to 10.50
Det., break., dl.	4.75 to 5.25
Eastern Pa.	9.00 to 9.50
N. Y. break, dl.	5.75 to 6.00
N. Y. No. 1 dl.	7.00 to 7.50
Pittsburgh	8.00 to 8.50

MALLEABLE

Boston R. R.	11.50 to 12.00
Buffalo	9.50 to 10.00
Chicago, agri.	6.50 to 7.00
Chicago, R. R.	7.00 to 7.50
Cinci., R. R. del.	9.25 to 9.75
Cinci., agri. del.	9.00 to 9.50
Cleveland, rail	10.00 to 10.50
Det. auto deal.	9.00 to 9.50
St. Louis, rail	5.50 to 6.00

RAILS FOR ROLLING 5 feet and over

Birmingham	10.00 to 10.50
Boston, deal.	6.00 to 7.00
Buffalo	8.50 to 9.50
Chicago	10.00 to 10.50
Eastern Pa.	10.00 to 10.50
New York	6.25 to 6.75
St. Louis	9.00 to 9.50

LOCOMOTIVE TIRES

Chicago, cut	8.00 to 8.50
St. L., No. 1	8.00 to 8.50

LOW PHOS. PUNCHINGS

Chicago	9.50 to 10.00
Buffalo	10.00 to 11.00
Eastern Pa.	12.00
Pittsburgh	11.00 to 11.50

tinues easy with shipments light. The Worcester purchaser is taking limited tonnages of No. 1 heavy steel and some bundled skeleton, but the market lacks snap.

New York—Scrap volume is light, eastern mills taking limited shipments, if any. Dullness prevails in all grades. Prices are slightly steadier, and while displaying no indications of additional strength, a slightly better feeling is noted.

Philadelphia—A round tonnage of No. 1 heavy melting steel, the largest in this district for some time, has been placed by a consumer at Claymont, Del., at less than $8 delivered. At the same time this interest is releasing some shipments against back orders. Rails for rolling are quoted 50 cents lower.

Buffalo—No additional tonnage of scrap has been sold and principal consumers are taking little material on contract.

Pittsburgh — Scrap is steady with buying still limited to small lots and slightly less active than a week ago. Supplies of heavy melting steel are small and dealers are unable to cover recent sales at less than $10. The market remains $10 to $10.50. Supplies of sheet scrap also are small but no new buying is noted.

Cleveland—Prices of steel and iron scrap are unchanged. Final shipments are being made on contracts to a wire producer. About 1000 tons of blast furnace scrap has been bought by another consumer here, divided among several dealers.

Cincinnati—Pressure on iron and steel scrap quotations by prospective buyers is more aggressive although the market has resisted these efforts and maintained the general price list for several weeks. Shipments are light and include those to a mill which recently lifted an embargo imposed late last summer.

Detroit—No. 1 heavy melting steel, compressed sheets and turnings have been marked up 25 cents a ton. The market has shown signs of strength due to new purchasing at Pittsburgh and in the Valley.

St. Louis—The iron and steel scrap situation has improved to the extent that prices have steadied, better sentiment prevails and some melters are beginning to show more interest. Actual buying has not been resumed on any considerable scale, trading being confined chiefly to dealers.

Toronto, Ont.—General lack of new orders characterizes the iron and steel scrap market. Demand for steel scrap is at a standstill, while only occasional orders for small lots are reported in iron grades. No future delivery contracts have been placed, and none is in sight. Other grades are spotty and are moving slowly. Prices are unchanged and dealers are out of the market.

Birmingham, Ala. — Dealers have good stocks and sales are slow with prices weak. Heavy melting steel is in better demand though far from active.

Canadian Scrap

Dealers' Buying Prices

Per Gross Ton

MONTREAL

Iron axles	$11.00
Steel axles	10.00
Car wheels	8.00
Stove plate	8.00
Wrought pipe	2.00
Turnings	2.00
Heavy melting steel	6.00

TORONTO

Steel axles	7.00
Iron axles	7.00
Heavy melting steel	7.00
Turnings	2.00
No. 1 mach. cast (net)	9.00
Malleable (net)	7.00

Iron Ore Stocks Reduced, Though Consumption Slows

Iron Ore Prices, Page 50

Cleveland—Iron ore on hand at Lake Erie docks and at blast furnaces Jan. 1 amounted to 938,400 tons less than Jan. 1, 1930, according to the Lake Superior Iron Ore association. Though this is a favorable indicator for ore production this year, it is offset to some extent by the fact only 57 blast furnaces using lake ore were in operation Jan. 1, whereas a year ago 84 were active Producers, however, believe the trend in consumption this year will be upward, in contrast with the diminishing rate last year. Lake front furnaces used more ore in December than in November, but central and eastern district furnaces consumed consideraly less than in November.

	Tons
Ore consumed in November	1,311,212
Ore consumed in December	1,229,640
Decrease in December	81,572
Ore consumed in December 1930	2,338,824
Total consumed, year 1931	24,114,753
Total consumed, year 1930	45,192,180
Ore at furnaces Jan. 1, 1932	32,139,074
Ore on Lake Erie docks Jan. 1, 1932	5,874,235
Total at furnaces and Lake Erie docks Jan. 1, 1932	38,010,275
Total Jan. 1, 1931	38,948,675

Coke

Foundry and Furnace Requirements Slow—Weather Adversely Affecting Domestic Fuel

COKE PRICES, PAGE 50

Pittsburgh—Beehive coke demand is quiet and little changed. Foundry operations are slow to improve, necessitating only small lots of coke. Mild weather is affecting domestic coke demand adversely while requirements of blast furnaces, water gas producers and smelters remain slow. Prices are unchanged at $2.25 to $2.35 for furnace coke and $3.25 to $4.50 for foundry coke.

New York—An easy tone prevails in metallurgical coke. Beehive furnace is holding at $2 to $2.25, Connellsville, with concessions on tonnage; beehive foundry coke is down to $3 to $3.25, Connellsville, with shading on desirable business. Premium brands of beehive foundry coke are unchanged at $4.50 Latrobe, Pa. Specifications continue light.

By-product foundry coke is unchanged at $8.76 to $9.16, delivered Newark, N. J.; $10.50, New England; and $8.75, Philadelphia.

Cincinnati — Continued moderate weather is having a decided effect on the anticipated volume of domestic grades of by-product coke. Foundry demand remains light.

St. Louis—Specifications have improved slightly but are much below the average for this season. Principal demand comes from jobbing foundries in this district. Stocks of domestic coke are heavy.

Birmingham, Ala.—Production is being held down to a little more than 50 per cent as demand shows slow improvement. Independent producers are carrying little stock. Steel companies have a plentiful supply and will be able to meet increasing consumption.

Chrome Brick Is Lower

New York—The price of chrome brick has been reduced from $45 to $42.50 per net ton, f.o.b. shipping point.

Steel, Wrought and Cast Iron Pipe, and Tubing

Welded Iron, Steel Pipe

Base Price $200 Ton

Base Discounts on steel pipe, Pittsburgh and Lorain, O., to jobbers in carloads. Indiana Harbor, Ind., and Evanston, Ill., 2 points less. Chicago del., 2½ points less. Wrought pipe, Pittsburgh base.

BUTT WELD

	Steel			Iron	
In.	Blk.	Gal.	In.	Blk.	Gal.
½	58	44½	½	23	5
¾	62	50½	¾	28	11
1—3	64	52½	1—1¼	31	15
			1½—2	35	18

LAP WELD

2	57	45½	2	23	9
2½—6	61	49½	2½—3½	28	13
7—8	58	45½	4—6	30	17
9—10	56	43½	7—8	29	16
11—12	55	42½	9—12	26	11

BUTT WELD

Extra strong, plain ends

½	55	44½	¼ & ⅜	+13	+48
¾	60	49½	½	23	7
1—1½	62	51½	¾	28	12
2—3	63	52½	1—2	34	18

LAP WELD

Extra strong, plain ends

2	55	44½	2	29	13
2½—4	59	48½	2½—4	34	20
4½—6	58	47½	4½—6	33	19
7—8	54	41½	7—8	31	17
9—10	47	34½	9—12	21	8
11—12	46	33½			

To large jobbers these discounts on steel pipe increased on black by 1 point and two discounts of 5 per cent; on galvanized by 1½ points with two 5 per cents. Direct mill shipments, base, 5 and 2½. On iron pipe large jobbers obtain additional discount of 1 point with 5 and 2½ per cent on black and galvanized.

BOILER TUBES

Carload discounts, f.o.b. Pittsburgh

Lap Welded Steel		Charcoal Iron	
2—2¼	38	1¾	8
2½—2¾	46	2—2¼	13
3	52	2½—2¾	16
3¼—3¾	54	3	17
4	57	3¾—3½	18
4½—6	46	4	20
1½	1	4½	21

On lots of a carload or more, above base discounts subject to preferential of two 5 per cent discounts on steel and 10 per cent on charcoal iron. Smaller quantities subject to following modifications from base discounts.

Lap Welded Steel—Under 10,000 pounds, 6 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and two 5 per cents. Charcoal Iron—under 10,000 pounds, 2 points under base; on 10,000 pounds to carload, base and one 5 per cent.

STANDARD COMMERCIAL SEAMLESS BOILER TUBES

COLD DRAWN

1 inch	61	3	46
1¼—1½	53	3¼—3½	48
1¾	37	4	51
2—2¼	32	4½, 5, 6	40
2½—2¾	40		

HOT ROLLED

2—2¼	38	3¼—3½	54
2½—2¾	46	4	57
3	52	4½ 5, 6	46

Subject to 5 per cent supplementary discount for carload lots. On less than 10,000 pounds, base discount reduced 6 points. On 10,000 pounds to carload, base discount reduced 4 points and one 5 per cent allowed. No extra for lengths up to and including 24 feet. Sizes smaller than 1 inch and lighter than standard gage to be held at mechanical tubes list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Tubing

Cold drawn; f.o.b. mill discounts

Random lengths over 5 ft. 55%
Selected lengths, 1—18 ft. 53%

Cast Iron Water Pipe

Class B Pipe—Per Net Ton

Six-inch and over, Bir. ....$33.00 to 35.00
Four-inch, Birmingham .... 37.00 to 39.00
Four-inch, Chicago ..... 43.40 to 44.40
Six to 24-inch, Chicago..... 40.40 to 41.40
Six-inch and over, N. Y..... 28.00 to 30.00
Four-inch, New York ..... 34.50 to 36.50
Stand. fittings, Bir. base.... $100.00

Six to 24-inch, base; over 24-inch plus $20; 4-inch, plus $10; 3-inch plus $20; gas pipe fittings, $5 higher. Class A pipe $4 higher than Class B.

Warehouse Quotations at Leading Centers, in Cents Per Pound

(All Philadelphia prices subject to quantity differentials except reinforcing and Swedish bars)

STEEL BARS

Baltimore	3.00c
Boston	3.25c
Buffalo	3.00c
Chattanooga	3.00c
Chicago	2.75c
Cincinnati	3.00c
Cleveland	2.75c
Detroit	2.85c
Houston	2.65c
Los Ang.	3.40c
New York‡(d)	3.10c
Philadelphia	2.60c
Pittsburgh	2.60c
Portland	2.50c
San Fran.	2.40c
Seattle	2.50c
St. Louis	3.00c
St. Paul	3.00c
Tulsa	3.25c

IRON BARS

Baltimore	3.25c
Boston	3.25c
Buffalo	3.15c
Chattanooga	3.00c
Chicago	2.75c
Cincinnati	3.00c
Detroit	2.85c
New York‡(d)	3.10c
Philadelphia	2.60c
St. Louis	3.00c
Tulsa	3.25c

REINFORC. BARS

Baltimore	2.50c-3.31c
Boston	3.25c
Buffalo	2.95c
Chattanooga	3.00c
Cincinnati	3.00c
Cleveland	2.10-2.25c
Detroit	2.85c
Houston	3.00c
Los Ang. cl.	2.50c
Los Ang. lcl.	2.80c
New York	2.65c-3.10c
Phila.	2.40c-3.00c
Pittsburgh	2.60c
San Fran. cl.	2.60c
San Fran. lcl.	2.90c
Seattle	2.50c
St Louis	3.15c
Tulsa	3.25c
Young.	2.30c-2.60c

SHAPES

Baltimore	3.00c
Boston	3.35c
Buffalo	3.25c
Chattanooga	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland	2.95c
Detroit	3.10c
Houston	3.25c
Los Ang.	3.40c
New York(d)	3.10c
Philadelphia	2.50c
Pittsburgh	2.85c
Portland	2.50c
San Fran.	2.40c
Seattle	2.50c
St. Louis	3.25c
St. Paul	3.10c
Tulsa	3.50c

PLATES

Baltimore	3.00c
Boston	3.35c
Buffalo	3.25c
Chattanooga	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland, ¼-in. and thicker	2.95c
Clev., 3/16-in.	3.20c
Detroit	3.10c
Det., 3/16-in.	3.10c
Houston	3.00c
Los Angeles	3.40c
New York(d)	3.30c
Philadelphia	2.50c
Phila. floor	5.10c
Pittsburgh	2.85c
Portland	2.50c
San Fran.	2.40c
Seattle	2.50c
St. Louis	3.25c
St. Paul	3.10c
Tulsa	3.50c

NO. 10 BLUE

Baltimore	3.25c
Boston	3.50c
Buffalo	3.50c
Chattanooga	3.50c
Chicago	3.20c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.35c
Houston	3.35c
Los Ang.	3.95c
N. Y. (d)	3.00c-3.40c
Portland	3.50c
Phila.*† (e)	3.05c
Pitts.**	3.00c to 3.10c
San Fran.	3.65c
Seattle	3.50c
St. Louis	3.45c
St. Paul	3.40c
Tulsa	3.70c

NO. 24 BLACK

Balt.*†	3.50c
Boston	4.20c
Buffalo	3.70c
Chattanooga	3.65c
Chicago	3.55c
Cincinnati	3.75c
Cleveland	3.25c
Detroit	3.50c
Los Ang.	4.70c
New York	3.50c-3.65c
Phila.*†(e)	3.40c
Pitts.**	3.40c
Portland	4.00c
San Fran.	4.15c
Seattle	4.00c
St. Louis	3.80c
St. Paul	3.545c
Tulsa	4.75c

NO. 24 GAL. SHEETS

Balt.*†	4.00c
Boston	4.75c
Buffalo	4.10c
Chattanooga	3.95c
Chicago	4.10c
Cincinnati	4.25c
Cleveland	3.75c
Detroit	4.00c
Houston	4.25c
Los. Ang.	5.10c
New York	4.00c-4.10c
Phila.*†(e)	3.75c
Pitts.**	3.90c
Portland	4.50c
San. Fran.	4.65c
Seattle	4.50c
St. Louis	4.35c
St. Paul	4.23c
Tulsa	5.10c

BANDS

Baltimore	3.50c
Boston	3.75c
Buffalo	3.35c
Chattanooga	3.20c
Chicago	2.95c
Cincinnati	3.20c
Cleveland	3.00c
Det. 3/16-in. & lighter	3.15c
Houston	3.65c
Los Ang.	4.30c
New York(d)	3.40c
Philadelphia	2.90c
Pittsburgh	2.95c
Portland	3.50c
San Fran.	3.75c
Seattle	3.50c
St. Paul	3.75c
Tulsa	3.45c

HOOPS

Baltimore	3.50c
Boston	4.90c-5.40c
Buffalo	3.90c
Chicago	3.50c
Cincinnati	3.75c
Cleveland	3.55c
Det. No. 14 & lighter	3.65c
New York	3.75c
Philadelphia	3.15c
Pittsburgh	3.60c
Seattle	4.90c
St. Paul	3.75c

COLD FIN. STEEL

Rounds & Hexagons

Baltimore (c)	3.30c
Boston	3.50c
Buffalo	3.15c
Chattanooga*	3.75c
Chicago	3.10c
Cincinnati	3.50c
Cleveland	3.10c
Detroit	3.40c
Los Ang. (a)	4.50c
New York	3.30c
Philadelphia*	3.30c
Pittsburgh	3.10c
Portland (a)	4.50c
San Fran.(a)	4.25c
Seattle (a)	4.50c
St. Paul (a)	3.85c
St. Louis	3.35c
Tulsa	4.65c

Flats and squares 50c extra, except Tulsa, where 5.14c is quoted. (a) Rounds, hex. only.

COLD ROLL. STRIP

Boston 0.100 in., 500 lb. lots	5.30c
Buffalo	5.65c
Chicago (soft) (b)	5.65c
Cincinnati	5.80c
Cleve. (b)	5.55c
Detroit	5.40c
Phila. (c)	4.55c
New York	4.55c

(b) Net base straightening, cutting, boxing 1 ton or more.

(c) Plus mill, size and quantity extras.

(d) Minus quant. diff.

(e) New mill classif.

‡Domestic bars.

*Plus quan. extras.

**Less than 25 sheets.

*†50 or more bundles.

Pacific Coast

Small Lots Rule in Sales and Prospective Buying Is Not Large —Prices for Most Part Hold at Established Level—Increase of Water Freight Rates Impends —Warehouse Prices Weaker

Seattle — Plans of intercoastal steamship lines to readjust freight rates are of interest to the Pacific Northwest. While no definite action has been taken, and no change will be effective before March 1, it is proposed to raise steel rates to 30c and 27c respectively for Class A and Class B vessels. Since the dissolution of the conference a year ago, steel rates have been 20c per hundred pounds but this low level has not stimulated business.

Pig Iron and Coke

The foundry situation is unimproved, most plants being idle. Buying of materials is in small lots. No. 1 Columbia has declined to $20, f.o.b. plant, while Tyneside coke is down to $12. Low prices of scrap are affecting even the slight demand for pig iron.

Coast Pig Iron Prices

Utah basic	$22.00 to 24.00
Utah foundry	22.00 to 24.00
•German	24.25
•Indian	22.00 to 24.00

•C.i.f. duty paid.

Bars, Plates and Shapes

Mill prices are unchanged but quotations are nominal as there is not sufficient activity to give them a test. Merchant bars are slow but indications are more favorable for reinforcing material as several jobs of size are soon to develop. Pacific Coast Steel Corp. has started two open-hearth furnaces this month. The government has awarded to the Sheffield Steel Corp., Kansas City, Mo., 600 tons of concrete bars for the Cle Elum, Wash., irrigation dam, 1100 tons to be awarded later. Pacific Coast Steel Corp., Seattle, will furnish 100 tons of steel for the Port Angeles, Wash., postoffice. University bridge approaches, Seattle, bids Jan. 29, call for 719 tons. Seattle has opened bids for 30 tons 1 x 5½-inch mild steel, bids ranging from $1.50 to $2.08 per hundred pounds.

Puget Sound Machinery Depot, Seattle, has taken the subcontract from the Queen City Construction Co. to fabricate 3500 feet of 24 and 36-inch 5/16-inch gage steel pipe for the West Seattle overflow pipe project, requiring 200 tons of plates. The same job calls for 3200 feet of concrete pipe, requiring 30 tons of steel wire. No other plate contracts are pending.

Pipe Slow to Develop

New business is developing slowly and municipal requirements have not yet come into the market in volume. Spokane opened bids for 5400 feet of 6-inch cast iron and fittings, approximately 100 tons. Award has not been announced. Kalispell, Mont is reported to have awarded 636 tons of 6 to 20-inch to an unnamed manufacturer. Shelton, Wash, is in the market for a car of 6-inch cast iron. Portland, Oreg. opened bids for furnishing a quantity of small pipe and fittings.

All Awards Are Small

San Francisco—*(By Air Mail)*—Activity in the Pacific Coast iron and steel markets last week was confined to one or two awards of over 100 tons. No new inquiries of note were reported. Due to keen competition among reinforcing bar jobbers in the Los Angeles district, prices on warehouse material have weakened considerably and 1.90c, base, on carload lots appears general.

Bars, Plates and Shapes

Concrete bar awards aggregated 560 tons. The Blue Diamond Co. placed 134 tons for a dam at Pacoima, Calif. Unnamed interests booked 113 tons for a bridge at Wickenburg, Ariz. Bids have been opened on 100 tons for a bridge in San Diego county, Calif. Bids were in Jan. 20 on 100 tons for a hotel addition in Merced, Calif. San Francisco warehouse quotations continue to hold around 2.60c, base, on carload lots, though it is thought this price will be lowered as Los Angeles jobbers are now seeking tonnage in this market.

The largest structural award called for 565 tons for a postoffice at Stockton, Calif., booked by McClintic-Marshall Corp. The Minneapolis-Moline Power Implement Co. secured 100 tons for a telephone building on Vermont street, Los Angeles. Plain standard shapes continue to hold at 2.05c, c.i.f. while wide flange material is quoted at 2.15c.

Other Finished Material

Sales and inquiries for sheets remain quiet and with few exceptions less than carload lots constitute the general run of the market. The Southern California Edison Co., Los Angeles, plans to construct a sheet steel flume at Porterville, Calif., which will require over 500 tons of sheets. This work is expected to start in March. Prices on No. 10 blue annealed, No. 24 hot-rolled annealed and No. 24 galvanized sheets are firm at 2.35c, 2.90c and 3.40c, c.i.f.

Obituaries

(Concluded from Page 15)

man of the Chicago foundries of the company, but at the time of his death had jurisdiction over foundries of Crane Co. at Bridgeport, Conn., Birmingham, Ala., Montreal, Que., and Chattanooga, Tenn. Mr. Smith specialized in several branches of the foundry industry, particularly in molding sands and the vibratory test, on which he wrote a number of technical papers. He was a member of the American Foundrymen's association, Chicago Foundrymen's club and other organizations.

□ □ □

Oscar E. Swensen, chief engineer of Lackawanna Steel Construction Co., Buffalo, died Jan. 18 at Buffalo. He had been chief engineer of the company since its incorporation.

□ □ □

Merton G. Peck, 67, an executive of American Fork & Hoe Co., at Ashtabula, O., died at Ashtabula, Jan. 19. He had been connected with the company since 1898.

□ □ □

DeWitt F. Riess, vice president of the Vollrath Co., Sheboygan, Wis., died at Chicago recently. He was the son of John R. Riess, who was secretary and treasurer of the company, a pioneer manufacturer of enameled steel and cast-iron wares.

□ □ □

William B. Johnson, for many years superintendent of the drop forge department of Nash Motors Co., Kenosha, Wis., died Jan. 18. Born in Sweden, he came to America in 1901 and became connected with the former Thomas B. Jeffery Co., forerunner of the Nash Motors Co., in 1910.

Mill Products

Base price cents per pound f.o.b. mill except otherwise specified. Copper and brass product prices based on 7.50c, Conn., for copper

Sheets	
Yellow brass (high)	13.37½
Copper, hot rolled	16.62½
Lead sheets, to jobbers	6.75
Zinc sheet (100-lb. base)	9.00
Tubes and Pipes	
Seamless yellow brass (high)	16.62½
Seamless copper	16.12½
Rods	
Yellow brass (high, full turnings)	11.12½
Naval brass	12.25
Anodes	
Copper untrimmed	14.12½
Wire	
Yellow brass (high)	13.37½

Old Metals

Dealers' buying prices, cents lb.

No. 1 Composition Red Brass	
New York	4.25 to 4.50
Chicago	3.62½ to 4.12½
Cleveland	4.00 to 4.50
St. Louis	3.50
Heavy Yellow Brass	
New York	2.75 to 3.00
Heavy Copper and Wire	
New York	5.25 to 5.50
Boston	5.00 to 5.25
Chicago	4.12½ to 4.37½
Cleveland	4.50 to 5.00
St. Louis	3.75
Composition Brass Borings	
New York	4.00 to 4.25
Yellow Brass Tubing	
Cleveland	2.50 to 3.00
Light Copper	
New York	4.25 to 4.50
Chicago	3.62½ to 4.12½
Cleveland	3.75 to 4.00
St. Louis	3.50
Light Brass	
Boston	1.75 to 2.00
Chicago	2.37½ to 2.62½
Cleveland	1.50 to 2.00
St. Louis	2.00
Zinc	
New York	1.00 to 1.25
Cleveland	1.00 to 1.25
St. Louis	1.50
Aluminum	
Clippings, new, soft, Cleve.	11.00 to 11.50
Clippings, hard, Cleveland	7.50 to 8.50
Borings, Cleveland	3.00 to 3.25
Mixed cast, Cleveland	4.00 to 4.25
Mixed cast, Boston	3.25 to 3.50
Mixed cast, St. Louis	3.50 to 4.00

Secondary Metals

Remelt aluminum No. 12	8.50 to 9.50
Brass ingots, 85-5-5-5	7.12½

Metals

Demand Generally Dull but Prices Hold Fairly Steady—Copper Market Is Inactive

New York—Demand for metals was dull during the past week but prices were largely unchanged. Most consumers appear to be fairly well covered for early future needs.

Copper—Leading producers held firmly to the asking price of 7.50c, Connecticut, for copper. Some metal was sold by first hands at 7.25c and 7.37½c, but the total was regarded as insignificant. Consumers also booked a small tonnage of resale copper at prices ranging from 7.00c to 7.37½c. Demand from consumers both here and abroad has been extremely slow recently. Little pickup is anticipated until the general business situation is improved. With the plan for world curtailment of copper production in operation and the agreement of Copper Exporters Inc. on marketing rules, producers feel that the copper industry is in a position to emerge from the depression on an equal footing with other business.

Lead—Sales were slightly less active than in the preceding week but the price situation continued steady. January needs of consumers apparently are well filled and February requirements are about 50 per cent covered. Cable makers and corroders were the principal buyers last week.

Zinc—Demand has been light recently and the metal now is available at 3.00c, East St. Louis, for delivery through March. Only a few sellers have been in the market at the current level. Galvanizers continue out of the market despite low prices. Zinc ore stocks in the Tri-State district are excessive but the refined metal stock situation is relatively strong.

Tin—Sales last week were confined to small tonnages entirely for prompt or early delivery, since tin plate makers have not been active in the market. Prices showed little fluctuation but were governed largely by resales.

Antimony — Quotations held unchanged at the recently prevailing level of 6.00c, duty paid. Demand continued slow.

Aluminum — No change was evident in aluminum with respect to prices or recent dull demand.

Quicksilver Demand Dull

New York—Quicksilver demand continues dull, current business being confined to small lots and prompt deliveries. Sellers are quoting $65 to $67 a virgin flask of 76 pounds, the top price applying on small quantities.

Coke By-Products

Per Gallon, Producers' Plants, Tank Lots	**Spot**
Pure benzol	$0.20
90 per cent benzol	0.20
Toluol	0.30
Solvent naphtha	0.26
Commercial xylol	0.26
Per Pound at Producers' Plants in 250-Pound Drums	
Phenol	0.16 to 0.17
Per Pound at Producers' Plants in	
Naphthalene flakes	3.75 to 4.75
Naphthalene balls	4.75 to 5.75
Per 100 Pounds Atlantic Seaboard	
Sulphate of ammonia	$1.10 to $1.30

Millions for Gas Lines

More than $300,000,000 was invested in 1931 in long distance natural gas pipe lines, states Alexander Forward, managing director, American Gas association, New York. The decline in the sale of natural gas for domestic and commercial purposes in 1931 was 2 per cent, for industrial purposes 15 per cent. Revenue from sales of manufactured gas in 1931 totaled $441,900,000, about 2½ per cent under 1930.

Prices of the Week, Cents a Pound

	Copper—Electro delivered	Copper—Lake delivered	Copper—Casting refinery	Straits Tin New York Spot	Straits Tin New York Futures	Lead N. Y.	Lead East St. L.	Zinc St. L.	Aluminum 98-99%	Spot Antimony	Ingot Nickel
January 16	7.50	7.62½	7.25	22.37½	22.90	3.75	3.55	3.00	22.90	6.00	35.00
January 18	7.50	7.62½	7.25	22.12½	22.65	3.75	3.55	3.00	22.90	6.00	35.00
January 19	7.50	7.62½	7.25	22.10	22.55	3.75	3.55	3.00	22.90	6.00	35.00
January 20	7.50	7.62½	7.25	22.30	22.80	3.75	3.55	3.00	22.90	6.00	35.00
January 21	7.50	7.62½	7.25	22.25	22.70	3.75	3.55	3.00	22.90	6.00	35.00
January 22	7.50	7.62½	7.25	22.00	22.35	3.75	3.55	3.00	22.90	6.00	35.00

Europe

Inquiry for Steel and Pig Iron Increases but Orders Are Slow To Develop—Export Gain Slight

London—(*By Cable*)—Trade in steel and iron continues dull and the outlook is uncertain. Inquiry for Middlesbrough pig iron is expanding but production continues restricted. Heavy steel products are inactive although South Wales is importing billets for rerolling for its tin plate mills. Exports of steel and steel products have shown some improvement. Exports of galvanized sheets are low and domestic demand provides the better prospect.

From Brussels comes the report that the market shows improvement, with a better outlook and firmer prices as substantial foreign orders are being placed. Berlin finds conditions unfavorable, with serious decline in semifinished exports. While export inquiries are broadening they do not materialize into orders. Paris reports the tendency of French markets is firmer and the trade is calm.

Belgian Steel Market Is Facing Ruinous Prices

Brussels—The meeting of the Brussels iron and steel exchange at the year's end afforded no indication as to the trend for 1932. Business was extremely quiet from lack of buyers. As a result, the limited transactions were effected at falling prices. Sheet bars in particular were quoted at as low as £2 8s and £2 9s, gold, ($11.60 and $11.85) f.o.b. Antwerp.

There continues to be a small current of export business in semifinished steel to Great Britain and it is felt in Belgium that while two months ago a tariff on Continental semifinished steel appeared a certainty, the hesitancy of the British government seems to indicate that there is no unanimity among British steel users on that subject, and possibly British rerollers will be able to continue to obtain semifinished products from the Continent without a heavy duty being imposed.

On the other hand, prices now quoted are so low that only a limited number of Belgian works are willing to sell at those prices. Prevailing rates are as follow, all based on gold: Blooms, £2 4s ($10.65); 2-inch billets, £2 7s ($11.40). The Usines de la Providence has sold merchant bars at £2 13s ($12.85), gold, f.o.b. Antwerp. Belgian works continue to sell some finished products in France, but with great difficulty, because French works are now making considerable concessions to meet Belgian competition; this is particularly the case for structural steel, plates, sheets and merchant bars.

The Belgians are not in a position to sell semifinished steel in France, owing to the low prices prevailing for these products in French markets. Beams are quoted at about £2 11s ($12.35) for normal sizes and £2 12s 6d ($12.70) for British sizes.

There has been a small current of orders and also considerable attempts on the part of middlemen to obtain business for the German market. However, an arrangement between Belgium and Germany prevents Belgian works from exporting these products to the German market, and therefore the attempts are of no avail. Plates are quoted at 400 French francs ($15.60), and 3-millimeter sheets at 415 francs ($16.20). A good volume of inquiry for hoops and bands is noted.

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, Jan. 21

Export Prices f.o.b. Ship at Port of Dispatch—By Cable (or Radio)

	British gross tons U. K. ports	£ s d	Continental Channel or North Sea ports, metric tons Gold parity, $4.8665	£ s d to £ s d
PIG IRON				
Foundry, 2.50-3.00 Silicon	$10.15	2 18 6	$ 9.96 to $10.45	2 1 0 to 2 3 0
Basic bessemer	9.72	2 16 0*	9.18 to 9.72	1 19 0 to 2 0 0
Hematite, Phos. .03-.05	11.28	3 5 0	.....	.....
SEMIFINISHED STEEL				
Billets	$18.65	5 7 6	$11.66 to $11.91	2 8 0 to 2 9 0
Wire rods, No. 5 gage	29.50	8 10 0	24.30 to 25.52	5 0 0 to 5 5 0
FINISHED STEEL				
Standard rails	$28.63	8 5 0	$28.55	5 17 6
Merchant bars	1.09c	7 0 0	.59c to .61c	2 14 0 to 2 15 0
Structural shapes	1.20c	7 15 0	.57c to .58c	2 12 0 to 2 13 0
Plates, †¼ in. or 5mm	1.36c	8 15 0	.72c to .73c	3 5 0 to 3 6 0
Sheets, black, 24 gage or 0.5 mm.	1.36c	8 15 0	1.51c to 1.54c	6 17 6 to 7 0 0
Sheets, gal., 24 gage, corr.	1.40c	9 0 0	1.54c	7 0 0
Bands and strips	1.47c	9 10 0	.85c to .86c	3 17 0 to 3 18 0
Plain wire, base	1.32c	8 10 0	1.18c	5 7 6
Galvanized wire, base	1.71c	11 0 0	1.38c to 1.40c	6 5 6 to 6 7 6
Wire nails, base	1.71c	11 0 0	1.21c	5 10 0
Tin plate, box 108 lbs.	$ 2.52	0 14 6	$3.20	0 13 2‡

British ferromanganese $72 to $75 delivered Atlantic seaboard, duty-paid German ferromanganese £9 0s 0d ($43.74) f.o.b.

Domestic Prices at Works or Furnace—Last Reported

	£ s d	French Francs		Belgian Francs		Rentenmarks
Fdy. pig iron, Si. 2.5	$10.15	2 18 6	$ 9.46	240(2)	$10.32	370	$16.39	69
Basic bessemer pig iron	9.72	2 16 0*	.....	.....	10.04	360	17.93	75.50
Furnace coke	2.17	0 12 6	5.71	145	4.46	100	5.08	21.40
Billets	18.65	5 7 6	14.18	360	11.72	420	23.63	99.50
Standard rails	1.28c	8 5 0	1.41c	785	1.57c	1,210	1.37c	127
Merchant bars	1.09c	7 0 0	.90c	500	.65c	490	1.24c	115
Structural shapes	1.36c	8 15 0	.99c	550	.65c	490	1.22c	112.50
Plates, †¼-in. or 5mm	1.40c	9 0 0	1.17c	650	.79c	605	1.43c	132
Sheets, black, 24 ga. or 0.5mm.	1.36c	8 15 0	1.77c	985	1.56c	1,200	2.75c	255
Sheets, galv., corr., 24 ga. or 0.5mm	1.41c	9 2 6	2.39c	1,325	1.95c	1,500	4.43c	410
Plain wire	1.32c	8 10 0	1.62c	900	1.95c	1,500	2.24c	207
Bands and strips	1.47c	9 10 0	1.04c	575	.98c	750	1.44c	133

*Basic. †British ship-plates, Continental bridge plates. ‡German.
British quotations are for basic open-hearth steel, Continental usually for basic-bessemer steel.

Business Is Better

Makers of equipment and supplies for the enameling industry report business in enameling is the largest in history. One large enameling interest is operating at the highest rate in its history, 28 per cent above a year ago. This condition is due to the increased vogue for enamel finishes on refrigerator parts, table tops, stove parts, signs, building trim, etc.

□ □ □

Odin Stove Mfg. Co. and Erie Enameling Co., both of Erie, Pa., have resumed on full time.

□ □ □

H. P. Snyder Co., Little Falls, N. Y., manufacturer of bicycles, has resumed full-time operations, following inventory.

Machinery

UNFINISHED equipment schedules for 1932 are numerous, manufacturers in many cases having postponed the closing of these schedules until they know definitely what the first month of the new year is bringing forth in the way of startling new equipment announcements. This situation gives sales departments of equipment builders something tangible to work on. While 1932 equipment schedules in most cases are likely to remain on paper for some time to come, there is a feeling among machinery builders that the interest now manifest by prospects is less likely to die out than was the case a year ago. Therefore sentiment has improved.

New York—Increase in inquiries has brightened the outlook for machine tools and equipment. Actual sales still are small, being limited to one or two units, but several lists now before the market for figures are giving sales departments something substantial to work on. The caliber of recent inquiry indicates that most of this business actually will be placed.

In the past, hopes have been raised by issuance of lists which failed to develop into sales, these lists having gradually faded from the picture after figures had been submitted.

Railroads are not active, and in general industry manufacturing schedules show little change. Nevertheless, sentiment unquestionably is more optimistic.

Worcester, Mass.—Although the automobile market thus far is more quiet than many had expected, inquiry is developing from other sources to supplant the small automobile commitments already booked in that industry. A die-sinker and a die casting machine were booked during the week and an inquiry for two lathes was received from midwestern sources.

Chrysler Motor Co. momentarily is expected to appear in the market for grinders, having inquired of a local manufacturer for several such machines. Another grinder inquiry, developing in the New York district for a special product, involves four machines.

There is expectation in some quarters that the aircraft industry may revive as a market for grinders but volume of business in that direction is problematical.

Pittsburgh—Machine tool activity shows little change although the outlook is slightly better in some respects. Volume of new inquiry is unimproved but what there is comes from users who previously had been out of the market.

A number of buyers have issued inquiries over the past six months or more. A large portion of such work still is pending and broadening in interest is regarded as favorable.

Buying by railroads is very light but business is looked for from Pennsylvania railroad for its Altoona shops which were badly damaged by fire a short time ago.

Cleveland—There is lively activity, particularly among dealers, in following up as live prospects those companies in this territory which have increased operations to satisfy increasing automotive demands. As far as actual sales are concerned, not much has come out of this except orders for repair parts, tools and attachments.

It is obvious, however, that an increasing amount of attention is being given to improved equipment as far as planning for future production setups is concerned. Apparently several manufacturers have delayed completing 1932 equipment budgets until after the first of this year in order to give consideration to production machinery announced by builders in January.

Chicago—Improvement in the machine tool market is decidedly slow. However, sales of a few presses and smaller tools in the last week will help to put January orders ahead of December. Illinois department of public welfare is taking bids at Springfield on a list of small tools and supplies for state institutions. Industrial inquiry is scarce.

Automobile builders in this territory are deferring equipment inquiries until after the Chicago automobile show. A number of used tools have been sold in the last two weeks at receivership auctions. About 50 tools were sold Jan. 21 at the plant of Swanson Washing Machine Co., 7406 South Ashland avenue, Chicago.

Allis-Chalmers Mfg. Co., Milwaukee, has purchased Ryan Mfg. Corp., Chicago. Grader equipment formerly built by the Ryan company will be added to the lines of production at Advance-Rumely division of Allis-Chalmers, La Porte, Ind. It is expected that some equipment will be purchased for the Advance-Rumely plant later. Inquiries are slow in taking form.

Machinery Builders Hold New England Meeting

Worcester, Mass.—Necessity for modernization of industrial plants through installation of new equipment, was emphasized by Robert M. Gaylord, president, National Machine Tool Builders' association, in an address at the New England regional meeting of the association, held here Jan. 15. He pointed to the fact that a recent survey revealed that in 22 leading industries 48 per cent of the machine tools are more than 10 years old, therefore being obsolete.

Mr. Gaylord challenged the prevalent theory that modern machinery is responsible for overproduction and unemployment. He said: "The facts are that we have more general well-being, less pauperism and more people per thousand gainfully employed, than at any time since 1880."

New Machines Insure Lower Costs

Summing up the situation, Mr. Gaylord said, "Lower costs are required to stabilize manufacturing in line with lower commodity prices which now prevail. We cannot further reduce wages without destroying the buying power of the consumer. We do not have to ask labor to give us these lower costs. Our machines are ready to do the job."

Presiding at the meeting was Clayton R. Burt, president and general manager, Pratt & Whitney Co., Hartford, Conn. Mr. Burt, who is first vice president of the association, discussed the survey of industrial equipment. Among the other speakers were: Mrs. Frida Selbert, secretary of the association; Earle Whitehorne, assistant vice president, McGraw-Hill Publishing Co.; Howard W. Dunbar, works manager, machine division, Norton Co.; William A. Viall, vice president, Brown & Sharpe Mfg. Co.; Albert J. Gifford, treasurer, Leland-Gifford Co.; Edward L. Steinle, vice president, New Britain-Gridley Machine Co.; and Silas T. Massey, vice president, Heald Machine Co.

On this occasion, Boyd Fisher, newly appointed general manager of National Machine Tool Builders' association, was introduced to the New England members by Mr. Gaylord.

Construction and Enterprise

CONCISE, TIMELY BUSINESS BUILDING OPPORTUNITIES IN FIELD OF INDUSTRY

Pennsylvania

ALLENTOWN—Burnwell Corp. has been incorporated with $5000 capital to manufacture combustion appliances and devices, by Walter G. Lentz, 1113 North Twentieth street, Allentown, Pa.

PHILADELPHIA — Philadelphia Fixture & Equipment Corp. has been incorporated with 500 shares no par value to manufacture store and hotel refrigerating equipment, by Newton Burrison, Fifty-eighth and Chestnut street, Philadelphia.

PITTSBURGH—Electric Mine Door Co. has been incorporated with $50,000 capital to manufacture electric and mechanical doors and other safety devices for mines and buildings, by Paul M. Hittner, 384 Jefferson drive, Pittsburgh.

YORK—Crooke, Burnett & Co. has been incorporated with $10,000 capital to manufacture machinery and fabricated and cast metal products, by William J. Burnett, York, Pa.

Michigan

DETROIT—Detroit Tool & Forge Co., 656 Smith avenue, has been incorporated with $10,000 capital to operate a machine shop, by Kerr Volis, 1905 West Forest avenue, Detroit.

MARQUETTE — City council will take bids soon for waterworks improvements costing $50,000, including electric pumps to replace steam and a power line to plant. Pearse, Greeley & Hansen, North Michigan boulevard, Chicago, are engineers.

Indiana

INDIANAPOLIS — Ertel Machine Co. Inc. has been incorporated with $50,000 capital and 20,000 shares no par value to manufacture special machine tools, by John C. Ertel Jr., Robert H. Watson and Charles O. Roemler.

Illinois

CHICAGO — Pierce Equipment Corp., 228 North LaSalle street, has been incorporated with 1000 shares no par value to conduct a general machinery business, by Caplow, Kallen & Caplow, 228 North LaSalle streef.

CHICAGO — Metal Coating Corp., 824 West Twenty-sixth street, has been incorporated with 2400 shares no par value by Frank H. T. Potter, 1 North LaSalle street.

CHICAGO—Wachter & Co. Inc., 2621 Cottage Grove avenue, has been incorporated with $1000 capital to operate a machine shop, by Francis J. Wachter, 7831 Cregier avenue.

CHICAGO—Rosenberg Iron & Metal Co., 2501 South Hoyne street, has been incorporated with $50,000 capital to conduct a metal business, by Epstein & Arvey, 33 North LaSalle street.

CHICAGO—National Trucks Associated, 401 North Ogden avenue, has been incorporated with $20,000 capital to manufacture motor trucks, by Dean Chivington, Robert M. Cutting and Louis C. Nash.

PEORIA—Watson Engineering Co., 100 Hancock street, Peoria, has been incorporated with $50,000 capital to conduct an acoustical and contracting engineering business, by L. L., M. F. and M. M. Watson.

Southern States

NORTH BIRMINGHAM, ALA.—Ingalls Iron Works Co., 720 Fourth avenue south, plans addition to its plant for the manufacture of steel drums.

HARVEY, LA.—Continental Can Co. Inc., Syracuse, N. Y., plans to build a 3-story canmaking plant here adjoining plant of Penick & Ford, with whom former has long-term contract for all its cans.

FAIRMONT, W. VA. — Fairmont Foundry & Mfg. Co. has been incorpated by Lewis J. Carskaden, Watson building.

Oklahoma

BRISTOW—Marathon Oil Co., A. J. Slagter, Thompson building, Tulsa, Okla., general superintendent, plans to add cracking stills and new power plant equipment to its plants here and at Fort Worth, Tex.

Texas

BEAUMONT — City will build a steel hangar at the municipal airport at cost of $25,000. Irby & Woodside, 1020 Goodhue building, are architects. R. C. Black is city engineer.

ELECTRA — Waggoner Gasoline Co. has been incorporated with $25,000 capital to build and operate natural gasoline plants, by W. T. Waggoner, president.

FORT STOCKTON—Big Bend Pipe Line Co., H. C. Langston, general superintendent, plans extension of its pipeline to Marfa and Alpine, Tex.

HENDERSON — Beacon Refining Co., T. P. Cannon, box 578, Henderson, Tex., superintendent, will rebuild its burned oil refining plant.

LONGVIEW—Diamond Oil & Refining Co. has been incorporated by J. C. Calhoun to take over and operate the former Rusk Refining Co. at Overton, Tex. Improvements in power plant equipment are planned.

LONGVIEW — Arkansas Fuel Oil Co., Ardis building, Shreveport, La., has begun construction of a natural gasoline plant near here, including pumps, compressors and power equipment. A. C. Jamison is division superintendent.

Wisconsin

MADISON—Among state bridges to be built in 1932 are: Lone Rock flood bridge, cost $100,000; Flambeau river bridge, $125,000; Chippewa Falls bridge, highway 29, $400,000; Chippewa Falls, highway 35, $1,000,000.

MANITOWOC—Eastman Mfg. Co., following development of new type hose coupling for industrial purposes, will proceed with plant addition for which plans were drawn a year ago by William J. Raueber, Manitowoc, architect. Cost is estimated at $40,000 for building, equipment and machinery.

MILWAUKEE — Standard Oil Co. Indiana, Chicago, has leased several acres on the Jones island development and will build a bulk storage plant to cost $40,000. Five 33,000-gallon tanks will be built at once. J. H. Budde, 414 West Michigan street, is manager of the Milwaukee branch.

STEVENS POINT—Wisconsin Valley Electric Co., Ralph B. Lillie, manager, Stevens Point, will make improvements costing $75,000 to its hydroelectric plant and transmission lines.

Minnesota

MINNEAPOLIS — Northern States Power Co., R. F. Pack president, will rebuild its 110,000-volt transmission line between Riverside and Terminal stations and build a 35,000-kilowatt additional unit at athe Riverside station.

South Dakota

RUNNING WATER — Nebraska-Dakota Bridge Co., A. B. Wilder, 724 Washington avenue southeast, Minneapolis, has awarded contract to John W. Shaffer Co., 1010 Phoenix building, and Industrial Contracting Co., 3050 Fourth avenue south, both in Minneapolis, for a steel and concrete toll bridge across the Missouri river between Running Water and Niobrara, Nebr., to cost $600,000.

Dominion of Canada

BRANTFORD, ONT. — Universal Cooler Co. Ltd., Chicago, has taken over the Brantford Specialty Co. building here and will equip for manufacturing purposes.

PORT BURWELL, ONT.—National Fertilizers Ltd., is having plans drawn for a plant to be erected here.

ST. CATHARINES, ONT.—John Peart & Son Ltd. has been incorporated with $50,000 capital to manufacture plumbing and sanitary fixtures, by John Peart, St. Catharines.

MONTREAL, QUE. — Silent Glow Oil Burner Corp., 6320 St. Hubert street, is planning plant addition to cost $100,000.

NIAGARA SINGLE CRANK PRESSES

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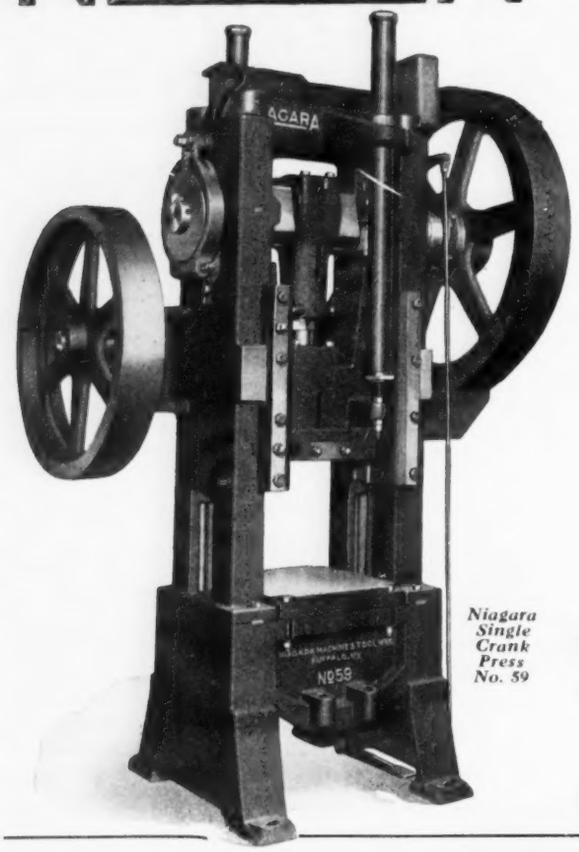

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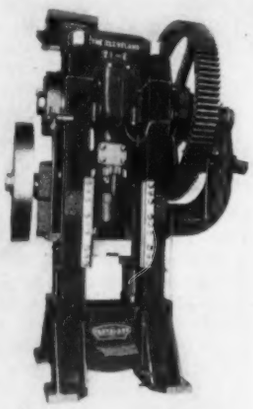

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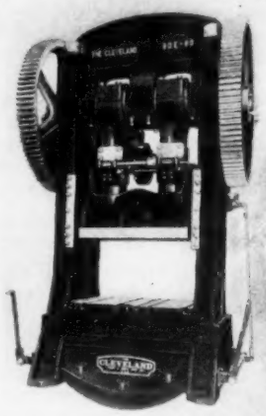

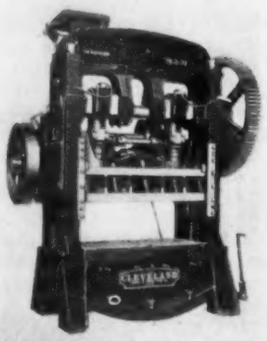

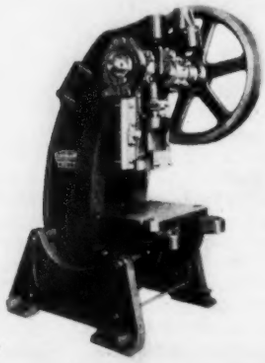

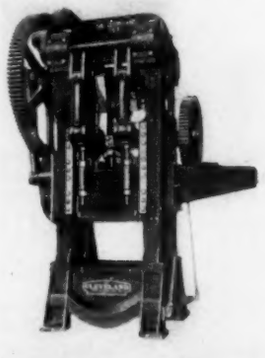

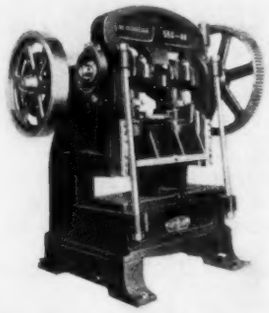

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